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ADDRESS.

CHAIRMAN'S ADDRESS.

Delivered in the Section on Physiology and Dietetics, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, June 1–4, 1897.

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The physiology of the various structures of the organism and the choice of the pabulum best adapted to their conservation are subjects that should command our most careful consideration. Formerly when disease was regarded as an entity and a visitation of an offended deity, only little, of course, could be expected to be achieved by dietetic measures. Success that could be obtained, however, by treatment of disease through a change or a restricting of the diet is by no means a modern discovery; the medieval and the ancient writings on medicine reveal many references to the subject. Thus the works of Hippocrates, the "Father of Medicine," show that he was not unacquainted with the evil effects arising from an unwise selection of articles of diet; he speaks of the enervation that results to the constitution from abstinence of food. Knowledge of the fundamental principles of dietetics is essential for the conducting of the cure of disease. There is no question that many morbid processes can be greatly modified by adopting a strictly regulated system of diet. It is largely through the researches made in physiologic chemistry that much of our knowledge has been obtained. Before such results had been acquired the methods of practice were merely theoretic.

One serious mistake that is often made is in prescribing articles of diet without having sufficint data for determining the needs of the organism. There should always be kept in view the importance of obtaining in each individual case a definite knowledge of the proportion that the ingesta bear to the egesta of the system. For ascertaining this relation, the habits and surroundings of the patient should be considered. It is evident that a person who is accustomed to sedentary occupations requires a more restricted diet than one who spends a large proportion of his time in active pursuits in the open air. An increase of weight is not always an indication that the selection of the food has been wisely made, nor, on the other hand, is a diminution of the measurements of the organ a sign that the food is ill-adapted to the needs of the body. The question that should be most carefully considered is whether the food has been sufficient to meet the demands of the normal excretion. The habit of introducing into the system agents that tend to lessen the metamorphosis or waste of tissue should not be overlooked in deciding as to the relative merits of different articles of diet to be employed.

Some physicians are inclined to prescribe, in their routine practice, the kinds of food that have apparently met their own fancied individual needs. Such a course should be looked upon as most unscientific. No class of foods, whether they be of beef, mutton or of fowl, or even of fish, should be selected in preference to all others for the prevention or cure of disease. In deciding what should be taken, reference will have to be made to the analysis of the excreta to ascertain what products have been normally voided, and what proportion of the water and of the chemic elements, carbon, hydrogen, oxygen, nitrogen, and of the sulphates, phosphates, chlorids, potassium and sodium has been eliminated. An examination should be made of the effete matter as comprised in the term carbon dioxid and certain forms of ammonia that are given off through the respiratory processes; the necessity of such investigation should be particularly borne in mind when called to the treatment of those cases in which the lungs have become the disease center. The urinary and perspiratory elements of excretion should also be examined. There can be no doubt that the exhausting nocturnal hyperidrosis accompanying tuberculosis is due to poisonous products that are determined to the lung tissue for elimination; doubtless such a sequel is often superinduced by the failure of other emunctories of the organism.

The utility of a diet's embracing the proteid elements to be administered in many forms of the disease should demand attention. In order to observe the effects of such ingesta the metabolic force of the living cells should in particular cases be measured by actual experiment. There are unquestionably varying degrees of metabolism as possessed by different individuals. The most important feature of the results of indulging in an excessive use of the proteid elements of diet is, notwithstanding that a condition of nitrogenous equilibrium prevails, the tendency to the production of podagric and other allied affections. The system when once brought under the influence of such a dyscrasia becomes readily the center of other diseases. Chronic inflammation of the kidneys is liable to ensue, so, also, are certain forms of interstitial hepatitis; iritis and even meningitis are not infrequent accompaniments of a gouty diathesis. Inquiry regarding the effects of the continual use of carbohydrate food will often have to be made.

The theories that are entertained by physiologists can not always be depended upon as affording facts sufficiently comprehensive for guiding the practitioner in his daily work. Much has been said against the use of starchy foods for the general diet; I apprehend, however, that many experiments that have been made on dogs for the purpose of settling certain questions in regard to the effects on the system of many kinds of food, should be received with some misgivings. Carbohydrates, as is well known, are liable to induce dyspepsia and other gastric troubles; the unpleasant effects of the employment of amylaceous foods may be obviated by a more free use of water. Starch, it

must be remembered, is largely composed of carbon dioxid and water. To facilitate its more rapid decomposition into its ultimate elements, water at the temperature of the body is essential. The chlorophyll or the green coloring matter of plants, that manifests such peculiar action in the decomposition of carbon dioxid and in fixing the carbon in new structures in the form of new compounds, owes its potency in some measure to the aqueous element with which it is always associated.

In establishing what should be a proper diet, many factors will have to be taken into account. Age, habits, exercise, climate, temperature, altitude, strength and perhaps sex, are conditions that must go far toward determining what should be the individual diet of the patient. As said before, a proper balance between the ingesta and the egesta should be maintained. For brainworkers food that is readily assimilable should be taken; the same should be prescribed for invalids.

In the endeavor to reduce excessive obesity by substituting or replacing, almost entirely, the proteids for the carbohydrates, the fact should not be overlooked that there is danger of setting up urinary troubles and of causing vesical calculus, renal disease and contracting kidney. These results by such change in diet have occasionally occurred in my practice. Of the proteids (albumin, casein, myosin, gluten, legumen, etc.) the chief in flesh diet is myosin associated more or less with globulin, serum, albumin, gelatin, elastin and hemoglobin. These are all originally obtained by the animal from the products contained in nitrogenous grasses, herbs and plants.

The question is often asked, why can not man by increasing his knowledge through scientific investigation make a wise and judicious selection of vegetable proteids that will satisfy his real demands for nourishment without having to resort to the consumption of animal food? I might here remark that though the wages of the peon workman of Mexico are ridiculously cheap, about three bits (thirty-seven cents) a day, he is able, on account of the climate being most congenial to his nature, to earn in twelve days, as it has been estimated, enough to meet the actual requirements as regards the necessaries of life for the rest of the year. "He does not eat," says Charles H. Lummis (*Harper's Monthly*, March, 1897), "much meat, nor does anyone except a stupid in that climate." Observations made during my recent visit in Mexico tend to confirm the truth of the above statement. Reference to the attainments of the early inhabitants of Mexico opens up for consideration some very important questions in regard to diet. The ancient Mexicans in their habits and acquirements were unlike in many respects those races of the Orient. If they were ignorant of the advantages to be derived from the use of cereal grains they were unacquainted with the nutrient properties of milk and with pastoral pursuits. The food of these early people must have consisted for the most part of fruits, plants, honey, fish and the juice of the maguey. Meats, even of the lighter grades, were merely incidental to their dietary list.

In considering further the question in regard to the necessity of the consumption of animal food for the growth and preservation of the races, it should be said that the ox, the sheep and the other animals whose flesh is esteemed the most essential for the support of mankind, do not derive their nitrogenous compounds by the consumption of other animals; they obtain such properties merely by the ingestion of grasses, herbs and other elements of the vegetable kingdom. The eating of so much food as the present American people are accustoming themselves to can but be regarded as a more slothful way of obtaining their necessary nitrogenous sustenance and must, therefore, eventually tend to the deterioration of the present inhabitants. A little more activity put forth in the search among the vegetable products for food necessary for the preservation and development of the races of our clime would undoubtedly facilitate the excretion of effete matter and establish a proper balance between the functions of assimilation and excretion.

In the hot climate of India the teachings of the Brahmins forbid the killing of animals for the consumption of their flesh. Many animals in that country are regarded as sacred or as containing the spirit of some departed monarch or chieftain. Perhaps the belief in the creature having such a possession was originally encouraged as a sanitary measure to prevent the indiscriminate use of the diet of flesh. In conversation some time since with a learned Brahmin who was visiting this country I learned that most of our Christain missionaries to India indulge freely in the use of animal food, and thus by persistently refusing, in the choice of their food, to adopt the prevailing custom of the higher castes finally fail to become acclimated and so are compelled after a few years' residence to leave the country. Suffering from boils, abscesses and internal disorders often hastened or superinduced by an over-stimulated diet is not, he said, an uncommon occurrence among these "Soldiers of the Cross." I am by no means an advocate of the exclusive use of a vegetable diet, but I feel confident, nevertheless, that before the advantages of many different articles for varying conditions can be established, many pet theories will have to be abandoned and an investigation carried out on a more scientific basis than heretofore attempted will have to be undertaken.

In connection with the functional activity of the several parts of the human organism and the food best adapted for their conservation there are, as said before, many modifying factors that should be taken into consideration. Prominent among them is the variation of the hematosis that is caused by high altitudes. Man can become accustomed to the influence of elevated centers; when long subjected to the controlling forces of the higher levels his fluids become more concentrated, his respiration and circulation are accelerated and the deficiency of oxygen is compensated for by the increased activity of sanguinification.

It has come to be more recognized that the presence of pure oxygen exercises a most potent influence on animality. During the early geologic ages, according to T. L. Phipson, nitrogen almost entirely constituted the earth's atmosphere. As vegetation advanced oxygen was more freely disengaged from the deeper centers and the anaerobic cellule underwent a modification; the anaerobic organisms assumed more the nature of aerobic bodies until the nervous cerebrospinal axis reached the development under the forms in which it is now represented. Man may, however, feel the want of ingesting for his aliment a large proportion of the nitrogenous element, but this craving, it must be conceded, is in no small measure the outcome of atavistic tendencies.

Those who deny the development of man from the lower forms of animal life, but hold strictly to the view that when he did first appear he was invested with organs not unlike those which he now possesses and that the shape and condition of his incisor teeth were given him by an all-wise Creator for the purpose of fitting him, in part at least, for partaking of flesh, should remember that according to the Mosaic account man's sphere of activity was first limited to the confines of a garden, where he was allowed to eat, not of flesh, but of every fruit with the exception of one that was in the inclosure; that it was only after his expulsion from that favored spot that mankind through his hardness of heart was, at his own expense and suffering, granted many indulgences. Nitrogen as a constituent of the air serves merely as a diluent. As a component part of the tissues for the highest or even for the average type of man, who can say that its presence is absolutely essential?

There are still many unexplored fields in which physiologists can carry on work to great advantage. Research, to be of value, can only be made by careful experimentation. Those schools that are encouraging original investigation in this line of inquiry will receive the largest returns. In conducting experiments many problems should be taken into account; the influence of the tempearture on the form of muscle curve, the peculiar features of electrotonus, the rhythmic action of the heart, the duration of its beats, its compensatory pause and other phenomena that are exhibited should be carefully studied. Observations thus made should not be looked upon as conclusive as to results that will invariably follow in every individual experiment, for the functions of animals, even of the same class and under what would appear to be precisely the same circumstances and conditions, are continually undergoing change and modification in development. It is only by repeating experiments many times that an average result can be obtained. The importance, therefore, of the study of the morphology of the protococcus, the ameba and of the paramecium and their reaction to certain forms of electricity and individual stimuli will thus be more readily appreciated.

THE HISTORY OF THE SECTION OF PHYSIOLOGY AND DIETETICS.

The introduction of the Section of Physiology and Dietetics into the AMERICAN MEDICAL ASSOCIATION, though of a recent date, was a wise measure. It was done in response to the necessity of correcting many errors and misapprehensions in regard to the importance and value of many different kinds of food that are employed in the care of hospital and private patients and are consumed by the people generally. The place in which any work of importance was first accomplished was at the meeting of the ASSOCIATION at Detroit, Mich., 1892. An address on "Physiology" was delivered by the chairman, C. H. A. Kleinschmidt, Ph.D., M.D., Washington. "Epithelia" was the title of a paper by Ephraim Cutter, M.D., LL.D., New York. The other papers were: "The Marine Hospital of Boston," by George W. Stoner, M.D., Surgeon U. S. Marine-Hospital Service; "Food and Hygiene of All Ages," by John M. French, M.D., Milford, Mass.; "Medical Food Ethics, Now and to Come," by E. Cutter, M.D., LL.D., New York; "United States Army Rations and Military Food," by Capt. Charles E. Woodruff, M.D., Assistant Surgeon U. S. Navy; "United States Naval Rations," by C. A. Siegfried, M.D., U. S. Navy; "Diet, in its Relation to the Treatment and Prevention of Disease," by Augustus P. Clarke, A.M., M.D., Cambridge, Mass.; "The Paddock Pure Food Bill" was brought up and discussed. The publication of the above mentioned papers and a report of the meeting by the Secretary, Dr. Ephraim Cutter, are found in the colums of the JOURNAL, 1892.

The officers of the Section in 1893 were: I. N. Love, St. Louis, Chairman; Ephraim Cutter, New York City, Secretary. The officers of the Section in 1894–95 were: E. H. Woolsey, Oakland, Cal., chairman; C. G. Chaddock, St. Louis, secretary; Executive Committee, I. N. Love, St. Louis; W. T. Bishop, Harrisburg, Pa.; Ephraim Cutter, New York. The program comprised: Address of Chairman, E. H. Woolsey, Oakland, Cal.; "On Food and Thrombosis," by Ephraim Cutter, New York; "Physiologic Treatment of Tuberculosis by Injection of Serum," by Paul Paquin, St. Louis; "Vital Resistance to Disease," by G. W. Finley, Harmony, Ind.; "Researches in Rapid Photography by Means of Edison's Kinetograph, and the Animated Reproduction by the Kinetoscope; Showing also by this Method the Present and Future Possibilities of Taking and Reproducing Certain Animated Physiologic Movements of the Larynx, Heart, Intestines, etc., with an Historical Account of Fifty Years of Photography," by J. Mount Bleyer, Naples, N. Y.; "The Influence of Atmospheric Electro-Barometric Oscillations," by John North, Toledo, Ohio; "The Physiologic and Pathologic Effects of Electricity, with Some Results of Practical Experience with Electricity," by E. H. Woolsey, Oakland, Cal.; "The Physiology of Instinct," by C. G. Chaddock, St. Louis; "Remarks on Test Meals," by Henry Salzer, Baltimore, Md.

The officers for 1895–96 were: H. Bert Ellis, Los Angeles, Cal., Chairman; Henry Salzer, Baltimore, Secretary. The members of the Executive Committee were: I. N. Love, St. Louis; E. H. Woolsey, San Francisco; H. Bert Ellis, Los Angeles; Augustus P. Clarke, Cambridge, Mass., chairman; Ephraim Cutter, New York, secretary.

This year an effort was made by your chairman and secretary to induce the leading members of the ASSOCIATION to make contributions to raise the standard to a footing with the other departments. How well they have succeeded in this regard it is not for them to say. It is to be hoped that this important branch of medicine will hereafter find representatives who at all times will gladly contribute to its support.

DISCUSSION.

Dr. EPHRAIM CUTTER of New York—The history of this Section goes back to 1889 at least, for that year it was announced on the program at Newport, a special room was selected and assigned to it beforehand and arrangements were made for the solar projection of the morphologies of foods. Considerable money was spent by the Secretary, but another Section wishing the assigned room, the authorities withdrew it and furnished another room where the sun could not be had, and this was such a damper that not a paper was read, nor the three cases of men cured of Bright's disease by food exhibited! The whole thing failed because faith was not kept by the Committee of Arrangements.

In 1890 this Section was on the program at Nashville. E. A. Wood, Chairman; E. Cutter, Secretary. The Committee of Arrangements unwittingly failed to give proper accommodations for solar projection. A room was assigned for the meetings of the Section but when we went to take possession at the proper hour we found it occupied by some 150 to 200 young law students listening to a lecture from a professor! The Chairman was so disgusted that he would not do anything more, save to give an admirable address on "Food" in one of

the general meetings, which was enthusiastically received and applauded to the utmost.

In 1891 the Secretary could not attend and can not report. This brings the history down to Dr. Clarke's report.

Our honored Chairman insists that complex foods must be given to the sick for cure of disease; in other words that there must be variety. With no disrespect to him, permit me to say that when man comes into the world normally he has but one food, milk; that he thrives wonderfully on it; that every tissue and organ not only thrive but grow and increase; that air is food and air is eaten twenty times a minute during life without change; that the writer has found in some diseases the best results with one food and that changing from one to multiple foods has done harm; further, that the cure is wrought by nature or the Divine power, being furnished with the fewest foods that can furnish material for all tissues.

What makes babies sick as a general rule? Too many foods. If a healthy babe has a healthy breast milk in abundance, other things being equal, it will remain healthy. Vegetarians can not deny that one animal food is the normal food of man at his birth. I do not believe it is necessary to have different foods for different diseases as a rule, according to my experience. I wish doubters would try living on different foods singly and thus learn their action and more about disease than can be learned otherwise. The AMERICAN MEDICAL ASSOCIATION ought to institute such experiments in the many biologic laboratories of the continent.

ORIGINAL ARTICLES.

PROBLEMS IN FEEDING SCHOOL CHILDREN.

Presented to the Section on Physiology and Dietetics at the Forty-eighth Annual Meeting of the American Medical Association, at Philadelphia, Pa., June 1-4, 1897.

BY HORACE P. MAKECHNIE, M.D.
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When the plebeians had seceded from Rome, the story of the stomach and members was related as an inducement for them to return. Today we need to have the story retold and our attention called anew to the importance of the stomach as related to all the other organs. So far as our school children are concerned, our physicians are well aware of the facts, which therefore need not be demonstrated. Many years ago, while teaching, I noticed that quite a percentage of children who had been sent to school very young and had been kept there continually became very dull. They would not study nor learn as bright active children ought. I used to say they were school hardened.

Since I have practiced medicine I have been consulted by quite a number of school children who had dyspepsia which was due to a lack of nourishment. What! starvation around tables loaded with food? Yes, that is just it. We do not get our best dinners at Delmonico's, but at some lonely farm house after a day's hunting or fishing. The best dinner I ever ate was a simple vegetable hash after a day's hunting. No epicure ever concocted a dinner like that.

Fashion says that the first course should be soup. The first course should be a ray of sunshine, a breath of fresh air and a dash of exercise flavored with amusement. Most people think when they have supplied an abundance of food for their children, three times a day, that is all as to feeding. When we manage a furnace we know that even to put the coal on is not enough. We may smother the fire with the fuel, or it may be clogged with débris. The drafts and dampers have to be attended to. I grant that our school children have food enough and, in the main, good food, but are they nourished? It is not merely a question of brain cells, but of every cell in the body. Do we turn out from our schools robust men and women? What should we do but for the poor country schools to send us brains and muscle and push? The idea of a child sitting still six hours a day in order to learn a few uninteresting letters! Let us suppose a child gets up and eats breakfast, what course would you pursue so that he would eat a proper dinner? I mean eat in its broad sense, so that every cell would be fed. Would you send him to sit in a chair, hard and perhaps ill-fitting, for three hours? Would you have him attend to matters that would call the blood especially to the brain? Yet that is what we do with our children year after year. I wish to call attention especially to our high school children. The breakfast comes before they have fairly shaken off sleep and the dinner after a long fast. They may have a lunch. They are not in a mood to properly avail themselves of it. Would any good authority on feeding advocate such a method?

We can not afford to systematically starve our children even by an indirect way, even in a mild degree. Besides, we defeat our whole object. Who has not wondered at the number of men that have poured in from the country and taken the best positions away from our city boys? Who has not wondered at the small and decreasing size of American families, especially in cities? The demand for longer vacations shows that people are sensible of an evil although they have not formulated it. Chain a child to a chair by a teacher's authority for three hours and then expect him to eat. No, you have starved him as surely as though you had deprived him of food. The muscle has not thrown off the old and made ready for the new. Every organ, except perhaps the brain, has shared the same fate. Then, wherefore the eating? Wherefore the proper growth, the nervous energy? If we are not giving our boys and girls the best advantages for assimilating food, is it not worth while to do so? Shall we get stronger, better developed, more energetic, better educated children, better citizens? I believe we shall. Four hours a day for school is confinement enough. I remember when it was six. Five hours are better than six and four will do better than five. Let us have playgrounds, industrial schools, swimming schools, cooking schools. Let our rivers and ponds be open for boating. Let there be some grass a child can step on, and see to it that we do not rob the child by rendering him unable to take food. It would be a pity, indeed, if we made our glorious common schools the means of physical degeneration. It must not be forgotten that the period of school life is the period of growth. It is now or never with the child. After years can not atone. What a shout goes up when the bell strikes for dismissing the school. Imagine the pupil of some old Grecian being glad that they could not go to the grove today, or of Socrates reminding Plato that he must keep his hands and feet in better position. Why not send our children out; one group to learn the geography of a park or river, one to find a wild flower, a butterfly or a geologic specimen; let him unconsciously find an appetite, and with it more food for brain. Sumner Ellis, a thoughtful writer, says of the age: "We are spent and why should we not be dull?" "Overwork leads to underfeeding." "Why not slacken into a greater speed?" This is to the point. The child who goes to school with uneaten breakfast should be sent home for a supply of fuel. This plea is made for those conscientious pupils who deserve

well of the community, and who should not be enticed on by marks of no importance except to the over-sensitive. Says Montaigne, "The feast is in the palate." It belongs to us to emphasize this fact. Edward Everett was chosen as the orator at the dedication of the Gettysburg National Cemetery. He was the highest type, even the pinnacle of our classic education. No word would be admitted into his speech unless it could bear the test of good breeding. Every gesture even was fixed and irrevocable. Lincoln was to speak as the President of the United States. It is admitted that his friends were abashed at the prospect of the comparison. It is unnecessary for me to say anything more of the two men except that if asked who would be likely to deliver a classic oration, an oration that would be remembered and that would appear in the school books, I should have said Everett, and yet it was Lincoln. His words will be remembered as long as Gettysburg itself will be remembered. This shows that our ideas about what constitutes education may require modification. If this example is not enough, enough can be found. It surprises me that educators do not study the lives of forceful men, trace their lives back and see how they obtained their force, their education. Some philosopher has said that a man's education should be commenced a hundred years before he is born. It follows then that we should, in the education of a child, look forward a hundred years. We must have a care or nature will rebel and will give us no offspring to educate. Nature is patient and long-enduring, but she knows how to correct our errors by the decree that our race shall die out if we do not nourish our young.

SUBCUTANEOUS INJURIES OF SOFT PARTS.

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CONTUSIONS.

Contusions are surgical injuries—other than fractures or wounds proper—in which the skin is not broken. The producing force is usually blunt. Most wounds are more or less complicated by contusion. It may involve the skin alone, or any of the subcutaneous structures as muscles, nerves, viscus or bone. There is always present some degree of vascular rupture. A contusion may be defined as a hidden wound modified by the nature of its surrounding parts. Simple contusions are more apt to be found where there is a plentiful supply of fat or muscle interposed between the bony frame-work and the vulnerating force, upon the character of which the nature of the injury largely depends.

Symptomatology.—The pain which follows is not always proportionate to the injury. There is usually some degree of numbness, followed by marked aching or throbbing during the inflammatory stage, accompanied to a greater or less degree by loss of function. The inflammatory symptoms exhibit the usual features; however, owing to the protection of the wounds by the intact skin, sepsis is less liable to occur. Should the tissue be too much disorganized and the blood supply occluded, gangrene will follow. The writer recalls an injury of this nature which ultimately led to the loss of a boy's lower limb. In this case conservative measures were pursued, but the blood vessels were crushed and gangrene followed, compelling double amputation. As a rule shock is present in proportion to the extent of the injury. However, very slight contusions of the breasts or of the testes, cause marked shock. The same may be said of the large joints. The discoloration of the tissues is familiar to all, and is well described by the popular expression, "black and blue." It is due to the extravasation of blood or blood tinged serum. The color under the mucous membrane is brighter than that under the skin. The distance from the surface, and the amount of blood in the effusion are modifying factors. At times the discoloration does not appear on the surface for some time, even for several days, owing to the depth at which the extravasation takes place. In these cases it appears as yellowish spots mixed with green and blue. After a time the blood corpuscles gradually disintegrate and become absorbed; the purplish hue fades successively into violet, olive-brown, green and yellow. In the majority of cases the abnormal color disappears in from ten days to two weeks, though in some cases it may persist for several months.

While the injury to the vascular system usually results in nothing more than ecchymosis, there are cases in which hematomas are formed. This confined blood may remain fluid for months or years, eventually becoming disintegrated, dark in color, and often mixed with inflammatory products. Absorption, however, is the rule, though in rare instances the clotted blood may become organized. If air enters a hematoma, rapid decomposition and suppuration follow.

Treatment.—The indications are[1]: To limit the amount of extravasation; to subdue pain, shock and inflammation; in severe cases, to maintain vitality in the part; to promote absorption of effused blood, and to treat complications and sequelæ. Rest is important. Cold with gentle pressure and the limb in a position favorable to the return circulation will aid in limiting extravasation. Dry heat seems to be more effectual in superficial contusions. Heat and cold contract the caliber of the smaller vessels, and hence diminish congestion and extravasation. Moisture, with heat, softens and relaxes the tissues and so is contra-indicated. Although it gives temporary relief, it would by aiding effusion do harm. Heat or cold can be applied by rubber coil placed around the affected part and attached to some contrivance for regulating the temperature of the water if it be heated. To secure cold the tubing may be connected with the faucet of the water-works. Ice-bags and hot-water bags may be used. Subdue pain by opiates if necessary. Administer stimulants to overcome shock. Cold, blood-letting, leeches, saline cathartics and low diet aid in conquering inflammation. In cases where extreme disintegration of the tissues has taken place, cold is contra-indicated, as it tends to weaken parts already too much depressed. In such cases dry heat must be applied by the various methods that the conveniences at hand will suggest. The removal of the effused blood may be hastened by the application of heat or brief cold effusions, pressure and proper massage. Dr. Gross recommended the application (on a folded flannel) of a strong solution of hydrochlorate of ammonia to which has been added a little vinegar; the parts are then covered with oiled silk, and the application renewed six or eight times in twenty-four hours. Aneurysms, ruptured viscera, paralyses, neuralgias, hypertrophy, atrophy and other conditions may

[1] Reference Hand-book of Medical Science.

arise as complications or sequelæ, and must be treated accordingly.

SUBCUTANEOUS INJURIES OF MUSCLES.

Owing to their unprotected position, the muscles of the body are liable to injuries of varying severity. Contusions and sprains may result from external violence or from twisting and straining. The symptoms may be a mild form of myalgia, intensified by exertion and pressure with ecchymoses and swelling. In the more aggravated cases the pain may become intense, and the discoloration become marked. In cases complicated with rupture of the larger blood vessels hematoma may occur. When only the deeper muscles (as those of the thigh) are injured, it may take days before the infiltration of blood to the surface causes any discoloration. At times quite painful bruises of deep muscles may occur without any external signs. The injury of nerves in this connection intensifies the pain.

Shock may, and frequently does, complicate the injury. Loss of function, except in extreme cases, is temporary. Suppuration may follow.

Treatment.—Shock and pain should receive the same attention as in any other ailment. The very important remedy for the contusion itself is rest. This is secured by means of bandages and slings or splints, the choice depending upon the part affected. If rest can not be secured otherwise, put the patient in bed. Especially is rest demanded when the lumbo-dorsal region is the site of injury. Henry R. Wharton reports nine cases of contusions and sprains of the back, with special reference to early treatment of such injuries[2]. Rest in bed was insisted on in these cases. Pain and discomfort were greatly diminished by strapping the back of the patient firmly with resin or rubber adhesive plaster two and one-half inches wide, and long enough to extend half around the body. These were applied so as to cover the back, one strap slightly overlapping the other from a point just below the junction of the last lumbar vertebra with the sacrum to the lower ribs. At the end of two or three days these were removed, but reapplied in cases where pain and tenderness persisted. This treatment seemed to have obviated the necessity of fomentations and stimulating lotions. Hemorrhage and serious effusion may be relieved by equable, elastic and firm compression. A simple flannel bandage cut on the bias is frequently sufficient for this purpose. Great comfort often follows the use of cold applications as ice-bags, or effusions of water, or evaporating lotions. The latter are most efficient in superficial contusions. Alcohol is the essential element in the tinctures so popular among the laity, arnica, witch-hazel, etc., and may be used with marked benefit. Cold applications are contra-indicated in cases where severe disorganization of the tissues has taken place. In such cases hot-water bags, warm flannels and other devices, may be resorted to for the purpose of supporting and stimulating the remaining vitality of the part. Later massage, with stimulating liniments, promotes the circulation, hastens absorption, promotes nutrition and re-establishes the normal function of the contused parts. In case of suppuration the part should be thoroughly incised and proper antiseptic treatment applied.

Rupture of muscle is not a common traumatism. Probably some of the cases reported as such are ruptures of the tendon, aponeurosis or sheath. This lesion may be caused by a tremendous blow, by being run over by a vehicle, or by violent muscular efforts, as in running, jumping or trying to catch one's self when slipping. (Dr. Baldwin once ruptured his right plantaris while dancing.) Spontaneous rupture may follow even a slight voluntary movement when typhoid fever or other acute, grave pyrexia has caused a degeneration of the muscle fibers, rendering them peculiarly brittle. Rheumatoid arthritis ought to be mentioned in this connection. Sudden and violent muscular effort, followed by a period of prolonged inactivity is regarded as predisposing to the event. "The excessive action which takes place in convulsive disorders—as hysteria, epilepsy and tetanus—will occasionally cause solution of continuity in muscular tissue." The muscles of the abdomen, of the thigh and leg, of the back and of the arm may be affected, the frequency corresponding with the order in which they are named. Strong men are more liable to muscle rupture than are women. Parturition may rupture the abdominal muscles. Occupation may be a predisposing factor in rupture of certain muscles, for example, porters and hod-carriers are more liable to rupture of the cervico-dorsal muscles; cavalrymen, of the abdominal and thigh muscles.

Symptomatology.—The symptoms vary with the extent and location of the lesion. There is always pain, except in the spontaneous cases following disease. The pain is sudden, sharp, and stinging or cutting, like the lash of a whip—*coup de fouet;* it is a crackling sensation, and a snap, as of something breaking, may often be heard. Syncope follows in some cases. There is loss of motion. Swelling and ecchymoses are present. Separation of the disrupted ends causes a depression. Tearing of nerve fibers explains the sharp pain. These symptoms will usually afford a ready diagnosis; however, great care must be taken in deep-seated cases, in which diagnosis must be made by exclusion. Professor Pean cites a case where rupture of the anterior portion of the deltoid bore a resemblance to luxation of the shoulder joint. Dr. Mansell Moullin thinks rupture of a deep-seated, perhaps degenerated vein, constitutes the lesion of *coup de fouet*, and not separation of muscular or tendinous fibers. He refers to a case in which this lesion occurred twice in the same leg, at different spots, during the same month. In both instances, under proper treatment, there was rapid recovery, which to him indicated lesion of a blood vessel. It is doubtful whether rupture of a vein alone would cause such sudden, excessive pain and loss of function. Such a lesion of a vein would cause greater hematoma and swelling, and more marked ecchymosis. Sédillot analyzed twenty-one cases and found all affected at the line of insertion between muscle and tendon, while there were also eight lesions in the body of the muscle. Nélaton found the situation of the lesion dependent upon the form and structure of the muscle. Those with long fibers and short tendons ruptured from injury to the fleshy parts. Those with short fibers and long tendons ruptured at the junction of tendon and muscle. In the latter, the rupture is more apt to be complete. Hematoma is almost constant. The extravasation is usually absorbed and repair takes place. Suppuration is rare in the previously healthy. Complications are usually not severe. Thrombosis may take place. Contracture and shortening may follow.

Treatment.—Relaxation and *rest*, with ruptured

[2] Med. and Surg. Reporter, Vol. lxx.

parts in approximation and under gentle pressure. When the muscle is perfectly healthy, the parts may be sutured. It will take from four to eight weeks to accomplish good results, and even then feebleness may linger. Varicosity may be avoided by use of the roller bandage. Contracture and shortening may be compensated by Anderson's method of lengthening tendon.

Hernia of muscle may take place, in consequence of the imperfect healing of a wound. It may be due to rupture of the muscle sheath following some severe exertion or unaccustomed movement. This condition may be recognized by the tumor, which is soft during relaxation of the muscle, and hard during its contraction. This tumor may persist for an indefinite period. "In recent cases, rest and methodical pressure will generally effect a cure. When the hernia has long existed, the edges of the opening should be freshened and united by stitches." Inconvenience may be so slight as not to justify any surgical interference.

SUBCUTANEOUS INJURY OF TENDONS.

Rupture of tendons may be the result of sudden exertion. It may be complete or partial, usually the former. Exertion that is not exaggerated may cause rupture in tendons of defective structure, as in Dr. Becker's case cited below.

Symptomatology.—Rupture of a tendon frequently causes a snapping sound. There is a sensation of something giving away. Pain is not so pronounced as in similar lesions of muscles. Loss of motion follows the lesion. There is a gap at the seat of injury, which is increased on contraction of its muscle. This depression may be felt and frequently seen. A rupture of the tendon of the quadriceps extensor causes severe swelling of the knee joint, due to effusion into the joint.

Dr. Becker[3] reports a case of subcutaneous rupture of the tendon of the quadriceps extensor, in a laborer who caught himself in slipping while carrying a load on his back. On making the incision for the sutures, fully one-half pint of blood escaped. In this tendon three cartilages had grown, from one-fourth to one-half inch in diameter. As they weakened the tendon, these were excised. The leg was antiseptically treated, and a good recovery made, though the shortening of the tendon caused the leg to remain bent at an angle of 90 degrees.

Treatment.—Approximation of the separated ends, by holding the parts in position by splints, bandages or other mechanical devices, until reunion takes place, which will usually occur in five to ten weeks. The better method is by suture, especially when it is difficult to control the contraction of the muscle. Operation is especially indicated in the leg, except in extreme age or other clear contra-indications. Aseptic surgery advises operation, even in old cases of rupture, where extensive dissection is required to find the widely separated and buried ends.

Displacement of tendons occurs sometimes, in injuries consequent upon sudden muscular action or great violence. The peroneal tendons are the most frequently affected. After pressing the tendon back into position, the parts should be immobilized and retention dressing worn until repair of the torn sheath or lateral ligaments takes place, if this can be secured. It may be necessary to resort to sutures. Dr. White has reported a case of dislocation of the tendon of the long head of the biceps, flexor cubiti.

[3] The Charlotte Medical Journal, July, 1895.

SUBCUTANEOUS INJURIES OF ARTERIES.

The arteries may suffer from contusions and strains. The walls of the artery may be ruptured so as to admit hemorrhage into the sheath, and this blood may produce such pressure as to cause partial or total occlusion of the vessel. Rupture, to a greater or less extent, of the internal and middle coats, is the most common result of contusing and stretching. The retraction of these coats, the outer coat remaining intact, produces obstruction. In cases where the vessel is so surrounded as to confine the extravasated blood in a cavity, hematoma may follow. The healthy artery recurves in a valvular fashion, while the diseased artery breaks up irregularly. Aneurysms, in the young and otherwise perfectly healthy subject,[4] sometimes follow severe strains. Fractures of the bones are a fruitful source of injury to the blood vessels. In some cases damage to the vessel walls may be so serious as to preclude return of function. In other cases of simple organic injury, obstruction may be but temporary. Where the artery remains intact, pulsation soon returns, though pressure overcomes it for a time. The following case illustrates the condition mentioned above, in which the internal and middle coats are ruptured:

A youth of 18 years entered Middlesex Hospital Sept. 13, 1894, complaining of injury to the upper part of his right thigh. Shortly before his admission he had been crushed between the sliding table of a press and the wall. He had walked without aid to the hospital.

Slight bruises were discovered on the anterior aspect of the upper part of the thigh, about an inch below the fold of the groin. No swelling; slight pain and tenderness; no discoloration beyond seat of bruises. The entire right limb was colder than the left. No pulsation in the common or superficial femoral arteries or in the posterior tibial and dorsalis pedis arteries. Pain ceased in two days. Signs of bruises slowly vanished. Could move limb freely two days after accident. Thirteen days after accident a slight pulsation in the dorsalis pedis artery was noted, but none in the posterior tibial or femoral. Three days later there was a distinct pulse in the dorsalis pedis. October 3, pulsation in posterior tibial. The femoral artery remained unchanged. Patient left the hospital October 4.[5]

Since there was no swelling in the above case, there could not have been rupture of the external coat of the femoral artery. The loss of pulsation in the common femoral, posterior tibial and dorsalis pedis arteries of the right limb, with coldness of the entire limb, justified the diagnosis which was made, "rupture of the inner and middle coats of the right common femoral artery." Collateral circulation, in this case, probably took place through the external circumflex and terminal branches of the profunda artery.

Symptomatology.—When but partially occluded, there will be slight pulsation on the distal side of the lesion; total occlusion would cause entire loss of pulsation. The parts will be more or less swollen, depending upon the amount of general contusion present. In cases where the great artery supplying a limb is occluded—as the brachial or the common femoral, as noted in the case above—the limb will be cold. There may be numbness. Pain will vary with the extent of nerve injury.

Treatment.—Wrap the part in cotton; secure rest for the part—splints may be adjusted to the limbs. Treat shock, if present, as in all cases—warmth, stimulation and by staying hemorrhage. Constitutional treatment may be demanded, depending on the general condition of the patient. Treat contusions as outlined above.

[4] Andrew Clark: British Medical Journal, Nov. 28, 1896.
[5] The Lancet, 1894, pp. 1277-1279.

SUBCUTANEOUS INJURY OF NERVES.

The nerves, like all the more vital organs of the body, are anatomically well protected. Those of the upper extremities are the more exposed, and for this reason, injuries are more common to nerves of these parts.

Contusions and *compression* are the most common of the injuries, though at times dislocations of the nerves are also met with. Direct blows may affect the nerves, causing severe pain and, at times, shock. Every one is well acquainted with the sensations due to striking the "crazy bone." These are due to concussion of the ulnar nerve as it crosses the bend of the elbow. The sporting fraternity are well aware of the effectiveness of a blow at the base of the neck causing contusion of the brachial plexus. Dislocation or fracture of various bones may give rise to serious contusion of the neighboring nerves, laceration being especially liable to follow fracture. In one of the clinics of the past year Professor Senn (Rush Medical College) presented a boy with fracture of the bones of the forearm, with faulty union and involvement of the nerves, causing loss of sensation in the hand and forearm. Fracture of the humerus frequently causes laceration of the musculo-spiral nerve, and the brachial plexus may be implicated in fracture of the clavicle, while the sciatic nerve may suffer from fracture through the sciatic notch. Compression of a nerve may cause partial or complete loss of its function. This compression may be continuous or repeated at very short intervals. It may be due to excessive growth of callus in repair of fracture; to tumors, especially thoracic aneurysms; to lying in cramped positions, as with the arms under the head; to exostoses; to contraction of scar tissue; to the use of crutches; to the use of forceps during labor; to prolonged compression of the pelvic nerves during protracted labor. Various mechanical injuries may tear or compress the nerves, causing hemorrhage into the nerve structure and affecting the myelin. Very severe subcutaneous injuries may even cause destruction of the nerve.

Symptomatology.—In contusion, there is a tingling sensation, as of pins sticking. In severe cases, loss of function may follow immediately. Occasionally a severe neuritis may develop, with pain in the distribution of the nerve. Palsy may be present, and trophic alterations may be among later symptoms.

Treatment.—Remove the cause when it is possible. Absolute rest is essential and morphin may be used to allay the pain. Arsenic is sometimes useful and galvanism may be beneficial.

Dislocation of nerves is rare. A blow may cause dislocation of the ulnar from its groove behind the epicondyle. Poncet[6] records an instance in which the dislocation was due to muscular effort exerted in throwing a snowball. Cases have been observed with no history of traumatism.[7] Holden[8] reports dislocation of both ulnar nerves while the patient was holding the steering wheel of a vessel during a storm. The patient felt something slip in both elbows, and a tingling pain in the distribution of both ulnar nerves. The nerves returned to their normal position on exerting slight pressure on the inner side of the elbows.

Treatment would be the same as in displacement of the tendons. Complications must be treated according to their nature.

[6] Semaine Médicale le Semestre, 1888, p. 39.
[7] MacCormic: Lancet, 1891, I, p. 1040; Lutz: St. Louis Medical and Surgical Journal, 1879-80, Vol. XXXVIII, p. 550.

INJURIES OF THE CHEST AND ITS VISCERA.

Contusions of the chest are very common but, owing to the extreme elasticity of the chest walls, they are seldom serious. Mild contusions give rise simply to bruises and ecchymosis. Abscess seldom follows such injuries. Fracture of the ribs is a frequent result.

Symptomatology.—The symptoms are pain, soreness, limited motion in breathing and abdominal respiration in injuries of considerable extent.

Treatment.—As in all contusions, the securing of *rest* is essential. This may be accomplished by compressing the chest wall so as to limit motion. The application of adhesive strips as directed under contusions and strains of muscles, would serve excellently in these cases. Other appropriate treatment for contusions and sprains should be adapted to the demands of individual cases.

Contusions involving the thoracic viscera may be of the most complicated and serious character. Rupture of the lungs, the heart, the pericardium, and of the blood vessels, may occur without external evidence of injury. "Commotio thoracica" is analogous to contusion of the brain—no postmortem evidence of mortal lesion ever having been discovered. Bruises of the lungs may result in varying degrees of injury. There may be simply rupture of the capillaries not involving the pulmonary tissue itself; there may be small ruptures of the lung tissue extending into the alveoli and bronchioles and including the surrounding vessels, which form depots of blood here and there in the neighboring tissues. In these cases recovery usually follows, provided there is no inflammation; but where the rupture becomes extensive, including the bronchi and larger vessels, death in many cases results very soon. Hemothorax, pneumothorax and emphysema are present after ruptures of the lung, in degrees varying with the amount of damage done. In making a diagnosis the signs and symptoms of these conditions must be kept in mind. Complications are apt to arise in the shape of bronchitis or broncho-pneumonia, traumatic pneumonia, pleurisy or gangrene. More or less impairment invariably accompanies recovery.

Treatment must be directed toward the relief of the conditions as exhibited in the individual cases.

Pneumocele, or hernia of the lung, is very rarely met with. In the civil war seven cases of pneumocele were recorded, and of these six were primary. While a few cases of the lungs escaping at the root of the neck, simulating in position and outline aneurysm of the great vessels, are reported, the greater number are found in the lower portion of the chest. When in the neck they may transmit such impulse and murmurs as to seriously embarrass diagnosis.[9] Pneumocele is usually the result of some penetrating wound, as a stab or gunshot wound; however, the unique case reported by E. Clifford Beale in the *Lancet*, Jan. 28, 1882, justifies mention of the subject under subcutaneous injuries. This was the case of a young carter, who was admitted to the hospital in a state of extreme shock, Aug. 11, 1881, having been seriously injured by his own cart, from which he had fallen. The patient subsequently dying, part of the lower lobe of the right lung was found to have been forced into the abdominal cavity. The presence of the liver on the same side would oppose such protrusion except in case of unnatural conditions, such as a congenital fis-

[8] British Medical Journal, 1893, Vol. I, p. 288.
[9] Ref. Handbook Med. Sciences.

sure of the diaphragm. The writer has been unable to discover any directions for treatment, except in *penetrating* wounds resulting in protrusion of the lung. In such cases the parts should be cleansed and restored to normal position, or if it is adherent, ligature or excision is recommended.[10] In cases of subcutaneous lung hernia where the diagnosis is clear and the symptoms aggravated, the surgeon might be justified in cutting down to the parts, reducing the hernia or excising it as the conditions seemed to require.

Rupture of the diaphragm, in a patient whose condition is favorable, may be repaired by abdominal incision and restorative procedure. The operation requires skill and rapidity, and is of so difficult a nature as to demand the most careful attention of the best operators.

The heart may suffer from contusion, just as the other viscera. Carditis, endocarditis and pericarditis may be caused by contusion. These affections will be recognized by their characteristic signs and symptoms.

Treatment of these cases must include both constitutional and local measures. Absolute rest in the recumbent position is imperative. Opium may be used to allay pain, and for its sedative effect on the circulation. Collapse calls for artificial warmth and, to a certain extent, is a favorable condition, since it tends to check hemorrhage and inflammation. Violent reaction, following in some cases, necessitates the administration of cardiac sedatives. When inflammation of the myocardium, pericardium or endocardium results, the treatment is the same as for like affections from idiopathic causes.

Rupture of the heart.—The belief is firmly established in the popular mind that the heart is the most vital structure of the whole organism, and that the least interference with its function by external forces means immediate death. Records of wounds of the heart are not numerous, but out of twenty-nine collected cases of injury to this organ, only two were fatal within forty-eight hours.[11] This contradicts the popular view on the subject. The heart has suffered severe injury and such recovery been made as to enable the patient to live for years afterward.[12] Since this is true of incised wounds, it is true also of ruptures. In this connection the case below, reported by Prof. L. Hektoen,[13] is of rare interest:

The patient was a young baggage master with good family history, good habits and extraordinarily good health previous to February, 1891. At that time, while carrying a heavy trunk, on a rapidly moving train, he was thrown on his back by the train striking a curve. As he fell he exerted his entire strength to save himself. He felt a stabbing pain near the heart and heard a snapping sound. Three or four days later, a rumbling sound from the heart, occurring synchronously with its beats, became sufficiently distinct to be heard across a room of ordinary size. Peripheral pulsation was well marked. Later the sound disappeared, but there was shortness of breath, pain in the chest and palpitation of the heart, increasing to the time of his death, with additional symptoms of ascites and anasarca two weeks before death, which occurred somewhat suddenly in March, 1892. Physical examination Jan. 31, 1892, gave labored inspiration, quick pulse, diffuse and lifting pulse in epigastrium and sixth or seventh space in left anterior axillary line, also in neck and crural regions. Area of cardiac dulness was increased. Rough diastolic murmur over base of heart, and diffuse systolic murmur at apex. A distinct murmur was heard over carotid, subclavian, brachial and femoral vessels.

Diagnosis.—History, symptoms and physical findings gave diagnosis of rupture of healthy valve, probably one of the aortic, causing an insufficiency which became permanent and led to hypertrophy and dilatation of left ventricle.

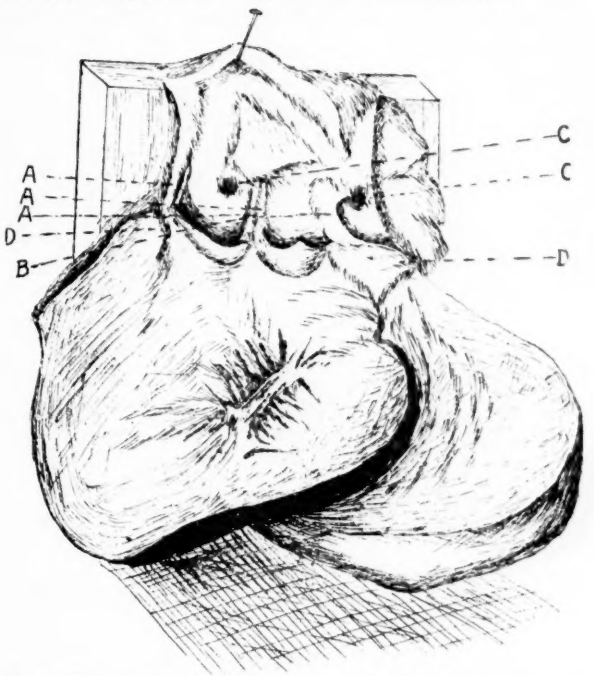

Fig. 1.—Heart with extensive ruptures at aortic orifice. (From Dr. Hektoen's article, by permission.) A, ridges of cicatricial tissue; B, cicatrix, from tearing of right posterior segment along attached margin; C, orifices of coronary vessels; D, anterior segment, cut across.

Postmortem.—Heart, weight 20 ozs.; apex formed by both ventricles, coronary veins on both surfaces distended; both sides of heart filled with fluid blood; left ventricle increased in depth and in thickness of its walls, right ventricle increased in depth, but diminished in thickness of its wall; papillary muscles compressed; semilunar valves incompetent to water test; orifices of aortic, mitral and tricuspid valves increased in size; valve leaflets uniformly thickened but showing no degeneration in structure; orifices of coronary arteries 1 cm. above free margins of aortic valves, instead of immediately behind; the left third of the convex attached margin of the right posterior segment of the aortic valve was torn loose from the vessel wall, its site of attachment showing a dense linear cicatrix, while the segment itself hung free (Fig. 1). Three ridges, as of cicatricial tissue, were upon the wall of the aorta, at points of usual joint attachment of valves to aortic wall. These ridges varied in length from one half in. (1.5 cm.) to one third in. (1 cm.), and showed characteristics of recent scar tissue. The valves were reattached lower down. Two small aneurysmal dilatations of the right auricular appendix showed walls composed only of epicardium and endocardium (Fig. 2).

Fig. 2.—Saccular aneurysmal dilatations in upper margin of right auricular appendix. (From Dr. Hektoen's article, by permission.)

[10] Am. Text-book of Surgery.
[11] Treves: British Medical Journal, Nov. 14, 1896.
[12] Mellish: Medical Times and Gazette, Aug. 3, 1861.
[13] The North American Practitioner, April, 1892.

Conclusions:—The principal lesion was at the aortic orifice, insufficiency here causing, secondarily, hypertrophy of the whole heart. This insufficiency at once occurred, when the right posterior segment of the aortic valve was torn, and continued, in consequence of the failure of this leaflet to reunite.

The muscular strain attendant upon the accident caused also the tearing loose of the three points of joint valvular attachments, leaving scar tissue on the wall, while the valves united again at a lower site (Fig. 1). This lower attachment accounts for the peculiar situation of the coronary arteries. The aneurysms of the right auricular appendix would result from the increased intra-auricular pressure.

(To be continued.)

"DEFICIENT EXCRETION FROM KIDNEYS NOT ORGANICALLY DISEASED AND SOME OF THE DISEASES PECULIAR TO WOMEN," AND DISEASES OF THE SKIN.

Read before the Medical Society of the Sate of New York, January 7, 1897.

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One year ago Dr. James H. Etheridge of Chicago, by invitation, made an address before this Society, the title of which was the first portion of that above given.[1] As there was no discussion except some remarks by the present writer it seemed best to present the matter again, with the author's full consent, in hopes that the important subject might receive further consideration from the members present, and that it might thus become doubly impressed on those likely to meet the cases referred to.

While the present writer disclaims all special knowledge in regard to diseases peculiar to women, he feels particularly interested in the subject which Dr. Etheridge so ably presented, for several reasons. Incidentally he has met many female patients, coming under treatment for various diseases of the skin, who were known to have also various uterine disorders of distressing character. Many of these patients had previously undergone prolonged and varied gynecologic treatment, often with unsatisfactory results. These uterine disorders he has seen improved and often quite recovered from, under lines of treatment directed for their skin difficulty, which quite coincided with those laid down by Dr. Etheridge, and without gynecologic treatment. He therefore begs to present the subject again, as briefly and clearly as possible, urging the profession to recognize the principles and employ the methods laid down by the distinguished author of the paper alluded to.

Dr. Etheridge has kindly given permission to use in the freest manner possible the material presented by him, which will be done as far as necessary to make the matter clear and forceful.

"Toxic materials always reside within the human body. They constitute the waste products of living beings. From birth to death they battle for supremacy. So long as they are plentifully excreted, death is postponed. The skin, the pulmonary mucous membrane, the bowel and the kidney constitute the avenues of escape for all toxic materials from our bodies. If one of these emunctories be crippled the initiation of death is manifest. . . . The physician who busies himself with solving the problem of the initial departure from the proper performance of excretion enters a new field of labor. It is the most interesting one he can invade today. . . . Herein he deals with the beginning of disease." Such are the strong words with which Dr. Etheridge introduces his interesting and important study.

Prominent among the systemic derangements which tend to the impurification of the blood current, and the retention in the system of the waste products of animal life, undoubtedly stand imperfect kidney excretion; the elements composing the urine are known to be poisonous both to the idvidual forming them, and also to animals, when artificially introduced. Extirpation of both kidneys is very quickly followed by death; the gradual retention of these normally excreted poisons, by means of imperfect elimination from the kidneys, leads, as manyhave shown, to various forms of disorder and disease in many organs of the body.

Dr. Etheridge has rendered an inestimable service to the profession, and to suffering females, in earnestly calling attention to the fact, which I can confirm most positively, that this insufficient kidney secretion plays a very important part in the production and continuance of many of the diseases peculiar to women. The study of the initiative cause of these diseases merits the most serious consideration of the profession.

How far the errors observed in the excretion from the kidneys pertains to the action of those organs alone, does not belong to our present discussion; nor how far the remedies used have for their action solely their influence on the kidneys. Undoubtedly the liver plays a very important share, as also the digestive organs, in rendering the ultimate process of removal of effete products imperfect. Suffice for the present that we discover in the kidney excretion the evidences of the imperfect removal of the waste and poisonous substances, and by means of the improved excretion from the kidneys we find the proof of their proper removal and consequent good health.

Recognizing that the proportion of the solids in the normal urine bears a certain ratio to a normal body weight, below a certain percentage of which they can not fall without indicating "renal insufficiency," Dr. Etheridge has given a table, prepared by an expert physiologist, which is here reproduced:

TABLE 1. Relation of body weight of healthy human beings to total daily excretion of urinary solids:

Weight.	Total urinary solids.
40 pounds.	392 grains.
50 "	479 "
60 "	563 "
70 "	639 "
80 "	716 "
90 "	789 "
100 "	854 "
110 "	916 "
120 "	974 "
130 "	1028 "
140 "	1078 "
150 "	1150 "
160 "	1198 "
170 "	1237 "
180 "	1260 "
190 "	1300 "
200 "	1330 "

As this table was constructed for healthy human beings, and takes into account exercise, Dr. Etheridge does not think that practically quite these amounts can be expected in women who come for treatment. It is to be remembered also that women always excrete

[1] Transactions of the Medical Society of the State of New York, 1896.

less than men, pehaps one-tenth less. He would, therefore, from experience fix the limit at 500 grains for a woman weighing 90 pounds, and 1,100 grains for one weighing 180 pounds; from which data a scale can easily be constructed, as follows, for practical daily work:

TABLE 2.—Relation of body weight of women of average health to total daily excretion of urinary solids:

Weight.	Total urinary solids.
90 pounds	500 grains.
95 "	535 "
100 "	570 "
105 "	605 "
110 "	640 "
115 "	675 "
120 "	710 "
125 "	745 "
130 "	780 "
135 "	815 "
140 "	850 "
145 "	885 "
150 "	920 "
155 "	955 "
160 "	990 "
165 "	1025 "
170 "	1060 "
180 "	1100 "

This table is at the rate of about thirty-five grains additional for each five pounds of body weight, or seven grains to the pound, which is near enough for ordinary daily work. For greater accuracy there should be still some deduction for age; thus, between 40 and 50 years, deduct 10 per cent., between 50 and 60 deduct 20 per cent., and between 60 and 70 deduct 30 per cent. from the amounts above given.

It is not a very difficult matter to carry out the plan of learning the total daily excretion of solids, if it be rightly arranged; it is especially easy in regard to women, as they are more apt to be at home and willing to attend to such matters. I have long had it done, daily in many instances, and in others at stated intervals. An ordinary two-quart mineral-water bottle is used, with a strip of paper pasted on the side for the scale. This is graduated by filling the bottle from a two-ounce measure and marking off each two ounces; the intervening ounce can be divided by the eye. Many druggists keep large bottles graduated for this purpose. A glass funnel is placed in the mouth of the bottle, by means of which all the urine can be poured into it as passed. The index is read off, the amount recorded and the bottle emptied at a fixed hour every day and a sample of the whole is sent to the office, with the statement of the total amount passed. From the specific gravity of the sample the total amount of solids passed in the day is easily estimated by Haines' modification of Haeser's method, as given by Dr. Etheridge; which is as follows: *Multiply the last two figures of the specific gravity of the urine by the number of ounces voided in twenty-four hours and add 10 per cent. to the product.* Thus, if the amount passed in twenty-four hours was 36 ounces and the specific gravity 1021, it would be $36 \times 21 = 756 + 10$ per cent. $= 831$, the number of grains of solids in the whole amount. Compared with the table it can be readily estimated if this is above or below the normal amount of the body weight of the patient.

It will be noticed that this estimate is for the total solids of the urine and not for the urea alone; the tests for the latter are slow and laborious and while often extremely valuable are really not necessary here; for, under normal conditions the urea represents nearly one-half of the solid constituents of the urine, and so would be expected to vary with the total solids. It is to be remembered that our study is in regard to kidneys not organically diseased, and at present no reference is made to albumin in the urine or to sugar.

But, further, the toxicity of the urine does not depend upon the urea alone. Etheridge states that "the coloring matter and other organic substances removed by charcoal filtration contribute at least one-half of the toxic power of the urine," and he attributes a considerable portion to the urinary salts of potassa.

It will be noticed, however, that very little has been said in regard to the actual quantity of the urine passed, representing the amount of water in it or the solubility of its constituents, a point hardly alluded to by the writer of the previous paper. The urinary water may vary so greatly from day to day, according to the amount of fluid drank and the activity of the secretion of the skin and respiratory organs, that it is in some ways of less importance than the actual solids of the urine, which represent the removal of the waste products of metabolism from the body. But, on the other hand, it is often immensely important and should always be known and appreciated. For even if the total amount of solids voided may be up to normal, there is still insufficiency of kidney action and consequent ill health if the proportion of water be not also about normal. A smaller amount of water, with higher specific gravity, and consequently containing a normal daily amount of urinary solids, does not conduce to the good health which a normal amount of urine with a lower gravity would indicate. Clinically this matter is often of the very greatest importance, and I could illustrate it by dozens of cases, did time and space permit.

Dr. Etheridge gives some very interesting cases illustrating the ill effects of renal inadequacy and their relief upon the employment of appropriate diuretic treatment, which I will very briefly quote before adding my own clinical statements and comments.

Case 1.—Mrs. C., multipara, had general metritis with deep double laceration of the cervix, with an obstinate bronchitis and profuse secretion; the severity of the cough increased the pelvic suffering and vesical irritability, also the profuse leucorrhea. Each winter she had been an invalid, submitting to very much gynecologic treatment, and had sought relief in warmer climates, where she was better, as also in summer; but with advent of cold weather the bronchitis returned, aggravating all her other troubles. Finally it was found that she was passing only 298 grains of urinary solids, when 850 grains was her normal amount. Under stimulating diuretics, tonics and a laxative, the urinary solids were increased, in thirty days, to 950 grains, the cough had disappeared, though in midwinter, and she was shortly in better condition than for many years.

Case 2.—Miss G., aged 23, had menstruated only five times in the previous year; she had backaches and headaches, circumpelvic pains, increased by exercise, an albuminous leucorrhea and great nervousness. The ascending colon was loaded with feces. She should have voided 850 grains of urinary solids daily, but was passing only 485. Under treatment of laxatives and diuretics the urinary solids were increased to over 1300 grains for a number of days, and regular menstruation returned. When, from neglect, there was again insufficiency of the solids in the urine, the amenorrhea returned, and a recurrence to diuretics again made her monthly sickness appear regularly.

Case 3.—Mrs. B., aged 36, the mother of three children and the victim of many abortions, complained of pelvic weight, general rachialgia, tender spine, pleurodynia in left chest, excessive nervousness and moderate metrorrhagia; she had a moderate metritis. She weighed 154 pounds and should have passed 900 grains of urinary solids daily, but was voiding only 480 grains. Her urinary solids were kept above 1000 grains daily for many weeks, and with local treatment and tonics she was cured in four months.

My own experience in regard to the value of diuretic treatment in many disorders peculiar to women dates back a good many years, and has come to me slowly though very convincingly. But I have always hesitated about reporting on the subject, because of my want of acquaintance with the actual condition of the pelvic organs, except from a report made by those who had previously seen the case or cases, aided by statements of the patient. But as I have gone on year after year, seeing and knowing of the vast improvement which occurred in my patients in regard to symptoms pointing to the pelvic organs of which they had complained, I have become more and more confident as to prospective results, when patients complained of uterine or other pelvic derangements.

When, therefore, Dr. Etheridge spoke with such positiveness, I was pleased indeed to find my own experience verified by so distinguished an authority, and I felt justified in adding my testimony to the same facts, observed from quite a different portion of the medical field; for it need hardly be added that my cases came to me for various diseases of the skin, and not for uterine or female troubles.

The first case, which impressed me perhaps most forcibly of all, occurred at least fifteen years ago; the name of the patient has gone from me so that I can not look up the notes of the case, but the details are yet very vivid to my mind, for many reasons.

My patient was a girl of about 23, with one of the worst cases of indurated acne that I had seen, the cheeks and chin being dreadfully disfigured. She gave the history of very great uterine trouble, for which she had received an infinity of treatment for a number of years. She had profuse menorrhagia with very great pain. Her condition had become so bad that an elevator had been put in her house for her use, as she never could go up stairs. She drove to my office and, as it was on the second floor of a basement house, I saw her the first few times in the reception room on the ground floor.

For her acne I gave her first alkaline diuretics and laxatives, tonics, etc., with a regulated diet, and she responded well to treatment. I remember well my surprise when one day she walked up stairs to my office. I shortly persuaded her to take a little exercise, walking a block and gradually more, and, to be brief, by the time the treatment for the acne was completed she walked a mile to my house and had abandoned her elevator at home. She had had no gynecologic treatment in the meantime, and I do not think that I knew what condition existed in the pelvic organs. Simply in treating the condition I found on the face the general results followed, and this treatment was very decidedly in the line of a relief to insufficient kidney and bowel action.

It is hardly necessary to occupy time in relating individual cases, and inded it is difficult to make selections from the notes of several dozen cases now before me, there are so many which exhibit gains in the directions mentioned to a striking degree. It is really now of daily occurrence for me to see those who have suffered from many of the diseased conditions peculiar to women, become freed from them under treatment directed largely along the lines advocated by Dr. Etheridge, and given mainly on account of skin diseases for which they sought relief. And I may say that almost without exception such cases have exhibited insufficient kidney action, many of them, of course, being also complicated with constipation and primary or secondary indigestion.

In this way I have seen many patients with amenorrhea in varying degrees, in whom the menses have been thus established in a regular manner; but as in Dr. Etheridge's case, their trouble will often return when the treatment has been neglected for some time, and from one cause or another the insufficient action of the kidneys returns. We all know of many instances where the menstrual flow has been suddenly checked by chilling of the feet, and it is just the same accident which so often deranges kidney action. Irregularities of the menses, as to the interval and their duration, have also constantly been observed by me to disappear as the eliminative treatment necessary for the skin disease has gotten under full action. Excessive flowing has also been met with from time to time, which has been regulated by the same line of treatment.

But it is in dysmenorrhea that the largest number of most interesting cases are found, and of these I could give many very striking examples. It is not at all uncommon for me to learn from a patient that since she had been under treatment the monthly flow had become more regular and natural than for years previously. Many who have suffered so severely that even opiates were required with each monthly sickness, in order to make life endurable, have, when under full treatment, absolutely lost all pain and become even unconscious as to when the menstrual epoch begins. And it has occasionally happened that a mother has brought a second daughter to me, not at all for the treatment of any skin disease, but solely for the relief of menstrual difficulties, because another daughter had found such benefit while under treatment for the skin.

My experience in a very considerable number of cases has also led me to the belief that many of the ills and discomforts complained of at the period of the menopause, and usually more or less accredited to this condition, as though dependent upon it, are in reality due to faulty elimination, principally by the kidneys. I could cite many many instances where attention to this element has resulted in the disappearance of the unpleasant symptoms in very brief time, while a neglect of the same would be followed by their recurrence, only to again disappear under exactly proper treatment.

I am quite aware that some of the statements I have made may seem exaggerated, and I may seem unwarranted in speaking thus positively in regard to matters outside of my chosen specialty. I can only assure you that I am speaking of what I have observed and know; for surely even the gynecologist can not know of the sufferings of patients except from their own statements; and I can verify the facts by many physicians who have seen cases with me. I may also say that in the local societies and to friends I have mentioned these ideas, and others have seen like good results in patients where this plan of treatment has been put in thorough practice.

It will be understood that in the cases referred to there has been no local or gynecologic treatment employed at the time, as I never in any way attempt such; nor have I generally known what, if any, local disorder or displacement existed, as I never make examinations in such cases, but send patients to gynecologists when special treatment is required.

I do not, however, wish to be misunderstood in regard to the matters of which I have spoken. I by no means claim that care in regard to deficient urinary secretion

will cure all the ills which woman is heir to. I most fully appreciate the need of the gynecologist, and recognize in the highest degree the splendid work which has been accomplished by them in the relief of suffering women. But from experience I know that many cases of uterine disorders can be relieved and indeed cured by full and adequate general medical treatment, including attention to and rectification of a faulty urinary secretion, which had too often been previously neglected. I can not do better than to close with a quotation of the final part of Dr. Etheridge's excellent paper.

"No intimation is here given that this is the most important factor in diseases of women. To set up such a claim would be most absurd. The aim of this article is solely to call attention to one line of treatment that has been all but universally neglected heretofore, and to invite observation and original investigations.

"There is the gravest reason for thinking that a very close relation, even that of cause and effect, exists between renal insufficiency and pelvic disorders. The developmental phase of the renal and generative organs constitutes that reason. Embryologically these two sets of important organs arise from the same source. The mesoblast in the ovum gives rise to the muscles, bones, circulatory and lymphatic systems, the urinary and generative organs. From this fact it becomes an easy matter to infer that derangements in one set of these organs can produce, in a reflex way, if you please, or at least are very frequently associated with, derangements of the other.

"Since observation shows the numerous cases of coexistence between renal insufficiency and neuralgias, mucous membrane disorders and serous membrane inflammations, one can not question the possibility of this insufficiency producing or permitting amenorrheas, dysmenorrheas, leucorrheas and attacks of pelvic peritonitis. It is strongly emphasized that the position is not assumed that all cases of these disorders are produced by renal insufficiency, but from the fact that many of them are relieved by including in the treatment remedies that increase the urinary solids, the conclusion can not be resisted that cause and effect actually exist between many of them and the deficiency of urinary ingredients."

4 East 37th Street.

IMPLANTATION OF A GLASS BALL FOR THE SUPPORT OF AN ARTIFICIAL EYE AND MULES' OPERATION FOR THE SUBSTITUTION OF ENUCLEATION OF AN EYEBALL.

Presented to the Section on Ophthalmology, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1-4, 1897.

BY L. WEBSTER FOX, A.M., M.D.

PHILADELPHIA, PA.

The satisfactory results attending evisceration for the better support of an artificial eye have led me to implant a glass or silver ball in those cases where the eyeball had been enucleated at an earlier period.

After an enucleation, and the artificial eye is adjusted, we have the objectionable enophthalmus and a fixed eyeball stare. Owing to the sinking of the artificial eye the secretions are retained in the cul-de-sac and in a short time we have the muco-purulent discharge, which adhere to the margin of the lids and also crust the anterior portion of the artificial eye, rendering the wearing of it most objectionable.

It was to overcome these objections that Mr. Adams Frost of London, in 1886, practiced the insertion of a glass ball immediately after enucleation of an eyeball. His method was as follows: After incising the conjunctiva all around the cornea, each rectus muscle was raised on a hook, seized with forceps, severed from its attachments and secured by a ligature; the eyeball was then removed and the glass ball introduced. The tendons were next united across the ball by means of the sutures previously passed through them, and finally the conjunctiva was brought together. Out of seven cases, Mr. Frost could only claim one successful operation.

Mr. Lang of Moorfields improved on Frost's method by placing the artificial globe in Tenon's capsule, which was sewed up and the conjunctiva then sewed over this. I have followed this method where the eyeball was atrophied and in several cases of simple enucleation, very successfully.

It is where the eyeball has been removed and when shrinking of the tissues has taken place that the implanted globe proves its value.

My first three operations were performed in 1895, and during the year 1896 I performed fourteen operations. In five of these cases the stitches broke and the glass ball came out. After two months I performed the second operation in the same socket. In two of these cases I operated the third time before the glass ball remained. I have found that it is useless to try restitching where the thread has cut its way out. If the wound does not heal by first intention the glass ball will be expelled by tissue contraction in spite of all protective measures.

My method is as follows: An incision is made through the conjunctiva and tissues of the orbit in the horizontal direction, corresponding scant to the diameter of the glass ball to be inserted; for instance, if the glass ball is one centimeter in diameter, the cut would be two millimeters less. The upper lip of the conjunctiva is raised, and with a sharp-pointed, curved scissors the conjunctiva and such connective tissue which lies close to it is dissected off in all directions around the incision, making a pouch into which the glass ball will fit. On account of the vascularity of the parts considerable bleeding follows this dissection, but it is easily controlled by pressure. After the bleeding stops the glass ball is inserted into the cul-de-sac with the injector. The edges of the conjunctiva are brought together by five or six stitches. Experience has taught me that it is well to keep the pressure bandage over the orbit from forty-eight to seventy-two hours. With the aseptic measures adopted in carrying out the details of the operation there will be little or no reaction. In the very few cases (two) where there was more or less pain, a few hypodermics of morphia controlled this. As regards the permanent stability of the implanted ball, time alone will tell, but of the fourteen operations performed in 1896, two balls came out ten months after the operation. There was a gradual thinning of the tissues over the globe, which was probably caused by posterior contraction of the orbital tissues, or possibly the artificial eye pressed so pronouncedly against the ball as to impede circulation, causing considerable attenuation and eventually rupturing of the conjunctiva, allowing the glass ball to escape.

MULES' OPERATION (EVISCERATION).

During the year 1896 I performed twenty-eight operations at the Medico-Chirurgical Hospital.

In regard to this operatiou I do not know that I can add any original point or suggestion to what I have already stated elsewhere. As time goes on and my experience becomes greater the more firmly am I convinced that ophthalmic surgery has been much benefited by adding this operation to its list, and like Brudenell Carter, I may say that "I am performing it with increasing pleasure on every available occasion."

Dr. Mules has given us the following table, which shows the advantage of this operation over that of enucleation:

ENUCLEATION	VERSUS	MULES' OPERATION.
1. Complete removal of globe and its contents.		1. Retention of the framework of the eye.
2. No stump, therefore sunken eye.		2. A firm, round globe forming perfect support for artificial eye.
3. Disturbance of all muscular relations and arrest of movement.		3. Perfect harmony of muscular movement retained.
4. A fixed staring eye attracting attention.		4. Fitted with selected eye defies detection.
5. Patient shuns society.		5. No qualms as to personal appearance.
6. Arrested development of orbit in case of children.		6. No interference with growth of orbit.

Mr. T. Herbert Bickerton of Liverpool, who has had the largest experience in England, always prefers evisceration to enucleation. In a recent letter from Mr. Bickerton he states that he is substituting silver balls for glass ones. Since January of this year I have also substituted silver balls, not for the reason that any change is made in the technique of the operation, but simply that no possible danger could arise of the breaking of the silver ball, which might remotely happen to a glass ball.

I repeat my method of performing this operation: The eye is thoroughly irrigated with a lotion, which I call formula No. 1[1] to designate it from almost the same formula for sterilizing instruments.

The eyelids are separated with the ophthalmostat. The conjunctiva is dissected off from its corneo-scleral attachment back to about the equator of the eyeball, the muscles also separated; then the cornea is excised. This is best done with a large Beer knife, as if performing a flap operation for cataract, the lower half of the cornea is removed with curved scissors, and the contents of the globe are taken out with a small scoop devised for the purpose.

Great care is necessary to remove the ciliary bodies and choroid and the head of the optic nerve, leaving a clean white sclera. Mr. Carter has devised a rubber bulb which is inserted into the scleral cavity and inflated with air to produce pressure on the central artery to prevent hemorrhage. As this application has not been a success with me, I pack the scleral cavity with sterilized gauze. After waiting a few minutes this is removed, and the contents of the scleral cavity are again thoroughly irrigated with antiseptic fluid and again packed. A sterilized glass globe, which is best suited to the case, is then inserted with a specially devised instrument. The sclera is split vertically so that the edges may be drawn together and held by stitches of No. 4 black silk, using large needles, completely hiding the glass ball. The orbit is again thoroughly irrigated with the hot solution and the socket packed with sterilized gauze. This dressing is kept wet day and night for twenty-four hours, when the eye is bathed with hot water and fresh dressings applied and continually saturated with the lotion, over which is bound a sterilized bandage.

At the end of twenty-four hours the upper eyelid is somewhat swollen, puffy and edematous, but the tumefaction gradually disappears. As a rule, the conjunctival sutures are not removed under six or ten days. It is important that both eyes are kept bandaged for at least six days. By allowing the liberty of one, too much rotation of the eye is permitted and, as a consequence, the antagonistic muscles of the operated eye pull apart and there is greater pressure brought against the sutures, which are liable to be torn out, a probable cause in several of my cases.

From the large number of operations now under observation, and no unfavorable ones reported, it may be considered a very safe one, and if we have in evisceration a method equally as safe as in enucleation, why not give the patient the advantage of the new method.

Résumé.—The total number of operations performed up to the present writing numbers eighty-two, and so far as I have been able to keep trace of them no serious results have followed any, such as sympathetic irritation or meningitis. In two cases the glass ball came out after two months. I have eight cases which did not heal by first intention and the balls came out before the patients left the hospital. I must attribute these failures to too rapid absorption of the catgut, or the glass balls being too large and the swelling of the tissues causing the silk to cut through the sclerotic and conjunctiva.

1304 Walnut Street.

[1] IRRIGATING FLUID.

Hydrarg. bichlor.	grains 1 50.
Zinci sulphocarbolatis	grains 30.
Aq. menth. pip.	drachms 2.
Aq. camph	
Aq. destill	āā ounces 2.

M. ft. sol.

The same lotion without the hydrargyrum is used for sterilizing instruments.

AN EXPERIMENT ON A RABBIT'S EYE, TO OBTAIN AN ELASTIC, UNBREAKABLE "ARTIFICIAL VITREOUS BODY" AFTER EVISCERATION.

(MULES' OPERATION.)

Presented to the Section on Ophthalmology at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1-4, 1897.

BY ALBERT PICK, M.D.

BROCKTON, MASS.

Dr. J. Herbert Claiborne of New York City presented a paper on this subject at the Forty-seventh Annual Meeting of the ASSOCIATION, at Atlanta, Ga., at which he described his experiments and drew conclusions on the subject. After reading his excellent paper (JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, Nov. 21, 1896, p. 1091) I was stimulated to try an experiment in this direction.

It is conceded by ophthalmologists that enucleation does not leave a sufficiently prominent and movable stump in the socket to afford the accurate and comfortable fitting of glass eyes. The objection to the introduction into the eviscerated scleral cavity of Mr. Mules' glass balls are that they subject the ciliary nerves to a constant pressure between two hard and unyielding surfaces, that glass balls are subject to fracture and that they are difficult of introduction.

Dr. Claiborne in his conclusions says: "The implantation into the scleral cavity of some soft yielding body which will not degenerate, which can be rendered aseptic, which will not swell by imbibition and which will not become absorbed, seems to be a rational procedure." Following out his line of thought, it occurred to me that a soft rubber ball, rendered aseptic, would possess these requirements. I had, therefore, made for me, soft rubber balls of various sizes.

Experiment.—On April 10, under anesthesia and perfect aseptic precautions, I eviscerated the eye of a rabbit. After cutting away all the cornea and separating the conjunctiva from the sclera around its corneal edges, I made two small vertical cuts in the sclera, one up and one down. The last procedure had for its object to permit the easy introduction of the rubber ball, without the aid of any special instrument. The introduction of the small rubber ball was easily accomplished, after which the incisions in the sclera were closed by fine catgut sutures and the wound edges of the conjunctiva closed by fine silk sutures.

The animal and the wound seemed to do well, but unfortunately the rabbit, which I had out for an airing on the fourth day, was accidentally killed. On postmortem examination the wounds seemed to have well progressed in the process of healing by first intention and the small rubber ball was in its proper place. I had intended to save the animal until shortly before this ASSOCIATION meeting and then examine the condition of the rubber ball and eye socket. I suppose an objection will be raised as regards the stability of the rubber within the eye-socket, it being constantly acted upon by the secretions. This is exactly the point which I had intended to investigate had the animal not been killed. I therefore tried to imitate the natural process and I placed the small rubber ball in a weak saline solution (not sterilized) in which I have left it for about two months, supposing that a saline solution would most closely resemble the natural secretions within the eviscerated scleral cavity. The rubber ball has undergone no change. I have seen soft and hard rubber appliances (rings, pessaries, etc.) left in the vagina for years which were very little, if at all, affected in their structure. [Rubber balls were exhibited at the Meeting.]

Although this may not be the ideal "artificial vitreous body" or, rather, artificial intra-ocular body, I trust it will be another stepping-stone toward finding such a one, which will remove all objections by ophthalmologists to Mr. Mules' glass balls and operation and will make more general and safer, in suitable cases, the operation of evisceration, which certainly yields a better stump and greater satisfaction to the oculist and patient.

The balls were made for me by Geo. Tiemann & Co. of New York City, whom I must thank for their assistance and generous expenditure of time and money for the molds to make the balls. They also made some hard rubber balls which might be preferred to glass balls for those who would rather use them. Dr. Wm. H. McKibben of Cincinnati kindly assisted me in the operation.

DISCUSSION.

Dr. FRANK ALLPORT of Chicago—I had the pleasure of witnessing Dr. Fox make some of these operations last fall, and I thought them as near perfection as possible. I have not made any of the implantation operations of which he speaks, but as I have seen some of the results which have proceeded from his clinics, I can testify to their value. The insertion of a Mules' globe within the scleral sac as a substitute for eyeball enucleation is a procedure against which I have always been prejudiced, and it was not until I had the pleasure of seeing Dr. Buller of Montreal, and Dr. Fox of Philadelphia, perform the operation, together with the observation of the results of past operations, that I surrendered my prejudices and consented to offer this method of relief to my patients. I have operated on a number of these cases since last fall, and although my cases have uniformly yielded favorable results, the time is as yet too short to estimate their permanency; but I for one am willing to accept the testimony of well-known surgeons who have kept cases under observation for many years and are still able to endorse this procedure. The operation must, of course, be performed with rigid antiseptic precaution, as otherwise absolute failure will almost inevitably result. Great caution should be observed in the complete removal of all traces of those elements constituting the ciliary region, and as an extra precaution, I usually trim off the edges of the scleral wound in order to remove the little scleral ridge at the scleral corneal junction, underneath which may sometimes be observed traces of the ciliary body. The protruding optic disc should always be carefully smoothed down to a level with the inner surface of the sclera, in order that the glass globe may not prove an irritant to its fibers. The little shovel-shaped scoop that has been devised for the purpose of eviscerating the contents of the globe, while especially adapted for this purpose, is not essential, as any medium-sized scoop will answer the purpose as well. I have used a large sharp-edged mastoid scoop for the purpose with perfect satisfaction.

The same may be said of the instrument devised for picking up the glass globes and inserting them into the scleral cavity. The instrument is useful but not essential, as the globe may be inserted with equal facility and safety by the surgically clean fingers. The hemorrhage which occurs in the course of the operation is sometimes troublesome, but is easily controlled by the use of very hot bichlorid tampons, which are also useful in all operations where troublesome hemorrhage is liable to occur.

I think one reason why some gentlemen complain of a subsequent escape of the glass globe is from the fact that they did not use a sufficient number of sutures. I have heard of some gentlemen saying that they used three or four sutures in closing up the scleral gap. I use as many sutures as the scleral tissue will accommodate, sometimes inserting as many as seven or eight, carefully setting them well back from the edges and, so far as my own experience is concerned, have never been troubled with their pulling out. I have used both black silk and catgut sutures, but prefer the former because I believe them to be more trustworthy. The globe which is inserted should not be too small nor too large. Both extremes have their disadvantages. If the globe is too small it will afford but a scanty support for the artificial shell which is subsequently inserted, thus diminishing the cosmetic effect of the operation. If it is too large it operates unfortunately in the inevitable swelling and inflammation, which can always be depended on in varying degrees. The globe should be just large enough to comfortably rest within the scleral sac and allow a moderate degree of wrinkling and laxity of its tissues over its glass surfaces. When thus, by the use of a globe of proper size, abundant contact between the artificial shell and the sclera is produced, the artificial shell is forced into a natural and prominent position, thus admitting of a harmony of motion between the two bodies. The reaction following the operation is somewhat excessive, but so far as my own experience is concerned, has never been uncontrollable, although in one case I confess I was tempted to remove the globe. I have controlled such reaction by the use of a lotion, recommended by Dr. Fox, consisting principally of arnica, opium and lead water, which I keep on ice and freely use.

I have found it exceedingly difficult to procure artificial eyes which are adaptable to these cases. The eyes which are on the market at present have been manufactured with the old enucleation operation in view and with the idea of filling out a hollow orbital cavity. All that is necessary for a socket upon which a Mules' operation has been performed, is a broad flattish shell, but these are hard to find. But if the Mules' operation attains the position which I believe its surgical importance demands, this difficulty will no doubt be obviated by the manufacturers.

I desire to thank Dr. Fox for his most excellent paper and for the good work he has accomplished in this line of surgery, and to say with him that I believe the operation to be a justifiable one, and if this is true, it should become generally used, as it is incomparably superior to any operation with which we are familiar and, in fact, may be said to be as nearly ideal as

possible. I have had no experience in the use of any globes except those of Dr. Mules, but I believe, in a general way, that the glass globes, although subject to the very remote possibility of breakage, are of the best material that can be used.

Dr. S. D. RISLEY of Philadelphia—Notwithstanding the adverse criticisms which have been urged against this operation by some surgeons whose ability gives great weight to their opinions, I am convinced that it is not only a justifiable and highly interesting operation, but one to be commended in prudently selected cases. It probably should never be allowed, however, to supplant excision of the globe in an extensive group of cases. For example, in suspected malignant disease of the intra-ocular membranes, in suppurative panophthalmitis, and in case of a retained foreign body when there is a probability of its lodgment in the orbit after passing through the eyeball.

Two years ago I reported a case of this kind and now present the mounted specimen, where the foreign body is seen clinging to the posterior pole of the ball near the optic nerve entrance, having penetrated all the coats. In a large number of patients, however, the operation is proper and presents many advantages over enucleation in securing the comfort and satisfaction of the individual. In the first place the deformity is much less than after enucleation. If the glass ball selected is of suitable size, in place of the unsightly empty orbital socket there is very little depression of the lids. It is open to question, however, whether the surgeon should for mere cosmetic results undertake a more difficult and tedious operation followed by a more uncertain convalescence. But the absence of deformity is by no means the most important of the results following the Mules operation. The empty socket, in most patients where the enucleation has been performed, is not only a reservoir for the accumulation of tears and mucus and dust, but forms an excellent nidus for dust and micro-organisms. There is in consequence a persistent mucopurulent discharge, causing the constant necessity for the use of aseptic washes. The artificial eye is also a constant source of annoyance. It must be frequently removed not only for cleansing but to relieve a source of irritation and discomfort. The artificial eye is hemispheric in form, the concavity being backward, the edges of rim resting on the tissues of the orbit. These tissues are more or less saucer-shaped, the concavity being forward so that when the shell is *in situ* an almond shaped cell is formed, at first filled with air, which soon absorbs, leaving a vacuum behind the shell. The atmospheric pressure upon the surface of the glass shell is then sufficient to cause discomfort and edematous swelling of the conjunctiva included within the rim of the concave shell. The truth of this statement is demonstrated by the considerable force often required to lift the artificial eye out of its bed, which is attended by a slight hissing noise as the air rushes behind it. This pressure is the explanation of the thickened and edematous condition of the orbit so frequently seen when the eye has been worn too continuously. Now, after the insertion of the glass ball in the emptied sclera the orbit no longer presents a concave, but a convex surface which is concentric with the concave surface of the artificial eye, so that no vacuum exists if it has been properly fitted. If of suitable size it also moves to and fro, up and down, in excursions which more nearly approximate those of the fellow eye than after enucleations, since the intra-ocular muscles have not been disturbed at their points of insertion to the sclera. In my own cases, even without the artificial eye, the tears and mucus do not accumulate but flow off by their natural channel and there has been no tendency whatever to inflammation of the conjunctiva. The patients have also been able to wear the artificial eye more continuously without harm resulting than after enucleation.

As regards the technique of the operation it has been my habit to make the line of the sutures horizontal instead of vertical, as has been done by some surgeons. The first step of the operation is to detach the conjunctiva about 5 mm. back from the corneoscleral junction. A Beer's knife is then inserted on the horizontal meridian about 5 mm. from the cornea, and the counter puncture made at a corresponding point on the opposite side of the ball, the knife entering behind the iris, the complete incision simply including the root of the iris above. The upper edge of the flap is then grasped with the forceps and a corresponding incision made below with the scissors. Much time and annoyance is then saved by grasping as gently as possible, with broad forceps, the ciliary body and carefully detaching the entire uvea with the flat handle of a scalpel. Then grasp it at its attachment in the region of the optic nerve, when the posterior scleral vessels may be torn away and the entire contents of the ball removed with comparatively little difficulty.

After the bleeding has ceased a glass ball should be chosen, as large as will nicely fill the scleral cavity. If it is too small there will be much overlapping of the scleral wound when the sutures are tied. I prefer for the sclera fine carefully sterilized catgut sutures, which should be placed at least 5 mm. back from the edge of the scleral opening. I regard this deep placing of the scleral sutures as of great importance, of which there should be at least five and a like number of fine, black silk sutures placed in the conjunctiva, closing it over the scleral wound.

In my earlier experiments my patients suffered greatly from extreme edema of the lids and chemosis of the conjunctiva which I think is caused by the extensive interference with the anastomotic circulation. In my later cases a firm compressed bandage has been applied and allowed to remain undisturbed for two days. In the first case thus treated, the edema and chemosis were greatly reduced; in the last case absolutely prevented. I have been struck with the rapid recovery following these operations; in every case it has been possible to introduce the artificial eye, and permit it to be worn with practical impunity at the end of two weeks, and in one case this was done on the tenth day. To secure the best results after this operation an artificial eye with a larger radius of curvature than those usually found in the market is required.

Dr. G. ORAM RING of Philadelphia—There can be no question but that the operation of "evisceration of the eyeball," with the insertion of an artificial vitreous, after the method of Mr. Mules, has taken a permanent place in the list of legitimate and important ophthalmic operative procedures; but, while I wish to be recognized as an enthusiastic advocate of the operation in suitably selected cases, being quite in accord with Mr. Brudenell Carter, whom I quoted in my review of the subject over two years ago, as believing the profession indebted to Mr. Mules for one of the most remarkable and valuable improvements in modern ophthalmic surgery, I still do not believe that the method should by any means be regarded as an universal substitute for the classic enucleation.

Although the introduction of the Mules spheres was suggested about twelve years ago, it has only been during the past two years that American ophthalmologists have accorded to the subject its merited attention. Our text-books, with one or two exceptions, have been silent regarding more than the merest superficial consideration of it, and the JOURNAL reports from the various operators have been far too infrequent. I believe all the surgeons who perform the operation frequently, have an increasing confidence in its utility. We can only arrive at a proper appreciation of the place the operation should hold by a careful, but not necessarily lengthy, publication of each failure, as well as of each success. Perhaps quite as important will be the publication of the detailed histories of those cases in which the operators have carefully considered, in each instance, the respective merits of the Mules operation, as compared with enucleation, with the reasons for the decisions in favor of the enucleations.

It is well known that at the recent meeting of the British Medical Association, in Carlisle, Mr. Bickerton of Liverpool accorded very high praise to the Mules operation. I had an opportunity, during the past summer, of examining a number of Mr. Bickerton's cases, and his beautiful results fully justify his enthusiasm. I therefore can not accord with Dr. Castillo in his recent criticism of this paper, and believe his conclusions, that only leucomatous eyes are adapted to the Mules operation, to be erroneous.

In a recent number of one of the Vienna journals (*Wien. Klin. Woch.*), Pfluger states that in order to prevent sympathetic ophthalmia, enucleation is the only proper operation. In three of my eviscerations, with the insertion of artificial spheres, distinct symptoms of sympathetic irritation were present. One was performed two and a half years ago, a second a year ago and the third six months ago. They all did well, and the irritated eye has in each case remained perfectly quiet. It has been thought by some of the operators (I think Dr. Fox and Dr. de Schweinitz are among the number), that calcareous degeneration of the interior eye tunics constitutes a contra-indication to the Mules operation. I performed the operation in a very pronounced case of the above type, during the winter, with a perfect result.

I will briefly refer to two recent cases, in both of which I decided on enucleation rather than the Mules operation. The one an acute inflammatory glaucoma in a patient 70 years of age, with organic valvular disease; the eye having been quiescent, but blind from a retinal detachment for about one year previous to the development of acute symptoms. The infiltration of the lids and peri-orbital tissue became so intense that fears were entertained for a suppurative inflammation surrounding the eyeball. This condition of affairs, coupled with a marked lowering of the patient's vitality, and the importance of an immediate removal of every possible source of further

systemic depression, decided me in favor of the enucleation. The case occurred in private practice and was seen in consultation with Dr. W. F. Norris, who concurred in my opinion. Post-operative senile dementia followed the operation, the mind becoming entirely clear with returning strength; no local complication followed.

The second case was one of inflamed scleral staphyloma, with beginning sympathetic irritation. I had intended in this instance to do a Mules operation, but upon dissecting the conjunctiva from the globe found such pronounced scleral distension and attenuation that the eyeball, when freed from the conjunctival attachment, immediately protruded so far forward that I was inclined to fear a possible growth in the posterior portion of the orbit. This did not prove to be true. This excessive protrusion with such striking distension and attenuation constituted, in my judgment, sufficient reason for not risking the introduction of an artificial vitreous.

I am still using catgut sutures for stitching the sclera in the Mules operation and silk sutures for the conjunctiva.

Dr. J. L. THOMPSON of Indianapolis—I wish to speak of some of the conclusions and of the comparison of the two operations. Some of the gentlemen have spoken of the fixed condition of the eyeball and of patients shunning society after enucleation. Have many of you found fixation of the eyeball after enucleation, unless there was atrophy or in burns of the eye? And the question in such cases is whether you would accomplish much more by this operation. I must have seen several hundred cases of enucleation and I have not noticed this staring appearance; I should not expect to see it unless the operation were done with a pair of sheep-shears or by some one who knew nothing about it. I think after you had as many cases of this operation as we have of the older one, you will find a great many cases of failure.

Dr. J. C. DUNLAVY of Sioux City, Iowa—The fitting of an artificial eye is one of two objections to this procedure. The implantation of a glass ball places the thin tissue continually between two glass surfaces. It appears to me that the tissue can only last a certain length of time and sooner or later will be destroyed. The staring eyes referred to after enucleation is to me one of the greatest horrors. In late years I never enucleate an eye unless absolutely compelled to, to save a fellow eye; if I can not do anything else I do the ordinary evisceration and find the small stump left is preferable to removal of the entire globe. I have never seen any reason for this staring except that the artificial eye does not fit. Rubber balls instead of glass ones appears to me to be impracticable, for I should consider that they in time would be destroyed.

Dr. S. C. AYRES of Cincinnati—I would like to mention an unique experience in the use of these balls. I was in London and bought a few of them when they first came out. A short time after, Dr. Sattler had occasion to use one of them. The operation was done properly, but two or three days later irritation set up and the stitches had to be taken out and the ball removed. We found a little pus in the glass ball; it had been a defective one with a little opening in it and had excited the trouble. It only serves to show what the possibility might be in the use of a glass ball, and I should think a silver ball might be better.

Dr. A. E. PRINCE of Springfield, Ill.—I have been using the glass balls for about twelve years and have not had very great success with them. In one case out of a series of six there was a splendid result; the other five failed. Now the silver ball has been spoken of and there is a point in general surgery that must be universally known, and that is that silver when in contact with granulating tissue becomes coated with lactate of silver, which is demonstrated to be a good antiseptic. Now if we use the silver ball and lactate of silver is formed, we have generated an antiseptic that may prevent failure in such cases as Dr. Ayres suggests, whereas in case of the glass ball the result would be disastrous.

Dr. GEORGE FRIEBIS of Philadelphia—I have had but little experience with the Mules operation. I had more with enucleation, but the Mules operation in all suitable cases will undoubtedly give far better results so far as cosmetic effects are concerned, and as has been emphasized, that is one of the principal points to be considered. The cases must be properly selected, but in many cases the Mules operation is one of superiority over enucleation because the motility of the eyeball is almost equal to that of the sound eye. I have seen several cases of enucleated eyeballs that presented the staring appearance undoubtedly. One that I performed some time ago, and I think I performed the operation with a fair degree of skill, presented considerable reduction or retraction of the ball, and that in itself is a cause in many instances of that staring condition that I detect after enucleation and which is absent after the Mules operation.

Dr. L. W. Fox of Philadelphia—I wish to call more attention to the implantation of the glass ball than to the Mules operation, which will take care of itself. The gentlemen who saw the operation of implantation yesterday saw that it would have been impossible to adjust an artificial eye, and it is in such cases that implantation is of the greatest value. It produces a bulging out of the stump upon which an artificial eye can operate. My first three cases were cases of a similar character, performed in 1895, and they have since been wearing artificial eyes with good adjustment and good movement. It is not as good as in the Mules operation, but better than complete enucleation. The case on which I operated yesterday was shown to six or eight of the gentlemen today, and the reaction was very slight; I am sure they were all surprised. Had not the gentlemen been there today I should have kept the bandage on for two or three days, as I find that a great improvement; I called attention to that point in my last paper. As regards the glass ball carrying infected or septic material into the eye, all the glass balls I have been using were sterilized in boiling water and if they are defective the water finds entrance into them and I throw them away.

Dr. ALBERT PICK of Hyannis, Mass.—In answer to Dr. Dunlavy's objections I would say that I simply tried this experiment for the sake of finding an elastic, unbreakable, aseptic substitute for Mules' glass ball, and that the rubber, hard or soft, will not degenerate as easily as the Doctor thinks.

BACTERIA IN THE NORMAL CONJUNCTIVA AND THE EFFECT UPON THEM OF ASEPTIC AND ANTISEPTIC IRRIGATIONS.

Presented to the Section on Ophthalmology at the Forty-eighth Annual Meeting of the American Medical Association held at Philadelphia, Pa., June 1-4, 1897.

BY ROBERT L. RANDOLPH, M.D.

BALTIMORE, MD.

The works of Leber, Sattler, Gifford and others on the bacteria of the conjunctiva are practically in accord in the opinion that the conjunctiva always contains bacteria. I recently made a series of experiments upon 100 individuals. These 100 persons comprised patients (not eye patients) in the dispensary, nurses, medical students and others. The inoculations were on nutrient agar, and usually smear cultures were made. A platinum loop was sterilized by passing it through a flame, and it was rubbed over the lower part of the conjunctival sac. The patient was then made to look down and the loop was carried well up into the upper part of the sac, and finally rubbed gently over portions of the bulbar conjunctiva. It is hardly practicable to bring the loop into contact with every part of the conjunctiva, and I doubt whether the platinum loop ever touched more than half the conjunctival surface, and yet out of the 100 cases there were only thirteen sterile tubes. If then inoculations from a limited area of the conjunctiva show the presence of the bacteria in eighty-seven out of 100 cases, it is more than probable that inoculations from the whole conjunctiva would show the latter to invariably contain bacteria. One must be careful in this class of experiments to avoid touching the eyelashes or the free border of the lids, as contamination will certainly result. In eighty-five out of the eighty-seven cases where bacteria were found, the latter resembled each other morphologically. No effort was made to determine the properties of this organism, and nothing can be said of it further than that it looked like one of the pyogenic cocci.

In surgery two methods are employed to sterilize the field of operation: The aseptic method, by which bacteria are removed by mechanical means (as for instance, the irrigation of a point with water which

has been sterilized by heat), and the antiseptic method consisting in the employment of chemicals which have the effect of either destroying bacteria or of interfering with their growth. Both methods were tested in two series of fifty experiments each. First the aseptic method: Inoculations were made from individuals with normal conjunctivæ. After this the conjunctivæ were irrigated three times (with an interval of five minutes between each irrigation) with water which had been sterilized by boiling, and inoculations were made from them again into agar. There was a growth in forty of the tubes representing inoculations before the employment of the aseptic irrigation; the other ten tubes were sterile, and hence are not counted in the results. After the aseptic irrigations there was a growth in thirty-two tubes, that is to say the apparent effect of the aseptic method was to produce sterility of the conjunctiva in eight cases out of forty. It is evident from this that we can not rely upon aseptic irrigations of the conjunctiva to produce sterility of this membrane. Another series of fifty experiments were then made. Inoculations were made to see if the conjunctivæ contained bacteria, and immediately afterward these conjunctivæ were flooded with a sublimate solution 1 to 5,000. Five minutes later inoculations were made from them again. Before the use of the sublimate forty-two tubes presented growth and eight were sterile. The eight are excluded. In the forty-two cases where there was a growth before the instillation of the sublimate there were nine sterile tubes after the use of this solution. The same staphylococcus which was so constantly found in the first series, was also found in the second and third series, and in the last twenty-five cases this organism was subjected to this test. The end of a platinum loop, after being thoroughly rubbed over the growth, was immersed in a solution of sublimate 1 to 5,000, and allowed to remain there for five minutes. The loop was then withdrawn and plunged into agar, and in every case there was a luxuriant growth, a result which showed that the chemical had apparently no effect on the vitality of the organisms.

Both aseptic and antiseptic methods then in my hands led to practically the same results, for by neither method was sterility of the conjunctiva obtained. I have frequently observed that persons complain of a biting sensation in the eye after an instillation of sublimate solution, and in my experiments hyperemia of the conjunctiva was produced a number of times, so I am inclined to think, in spite of what Franke has said on this point, that such solutions are more or less irritating in their effect on the conjunctiva. All that can be said of such a solution is that it may deprive the conjunctival bacteria of some of their virulence, in other words render them less effective, and then again it may actually kill some of the more superficially situated bacteria. It is more than probable that the conjunctival bacteria are so firmly attached or imbeded in the conjunctiva as to be beyond the reach of either the aseptic or of the antiseptic method as practiced by ophthalmologists, and nothing but the most vigorous scrubbing would produce asepsis.

The experiments reported here show that in so far as the conjunctiva is concerned, little reliance can be placed on the usual methods employed by ophthalmologists for obtaining asepsis.

Conclusions.—The normal conjunctiva always contains bacteria. It is probable that the bacteria found in this locality are usually of only slight, if any, pathogenic character. It should be remembered though, that bacteria ordinarily non-pathogenic may become harmful under certain conditions, that is if the tissues are bruised by the instruments or irritated by chemicals. Neither the irrigation with sterilized water nor the instillation of a sublimate solution (1 to 5,000) produces sterility of the conjunctiva, and inasmuch as both measures are futile and possibly harmful they may just as well be abandoned. These methods of sterilizing the conjunctiva are the ones usually employed by ophthalmologists, and hence the choice of them for testing this question. It goes without saying that a method which would destroy the bacteria of the conjunctiva without at the same time impairing the integrity of this membrane would be a great advantage. In operating upon the normal conjunctiva as in cataract operations, the surgeon in the present state of our disinfecting armamentarium would do well to consider the subject of antisepsis and asepsis chiefly if not solely in connection with his hands and instruments, and of course the cocain and atropin.

DISCUSSION.

Dr. HAROLD GIFFORD of Omaha—With these conclusions of Dr. Randolph I agree almost entirely. I have made this thing something of a study and I have found it practically impossible to sterilize the sac, as I believe everybody has found. That in some cases the normal conjunctiva has been found sterile, I think we can attribute to the method used in trying to find out whether bacteria are there or not. Now if you consider the effect of trying to get bacteria by wiping a wire loop around the conjunctiva you will see that you may get some few perhaps at one point and then wipe them off at another, and so perhaps get none. To me, the best method of testing this subject appears to be that of Bardelli, who after separating the lids widely with a speculum filled the sac with soft gelatin. Leaving this in a few minutes and then withdrawing by a pipette he made it into a plate, and by this means the conjunctiva has never been found sterile.

Now as to the reason why we can not sterilize the conjunctival sac. As Dr. Randolph has said, the skin has been shown to be impossible of complete sterilization without complete removal of the epithelium, and even that may fail. The conjunctiva is so smooth a membrane you would expect to sterilize it by wiping it well, but even if you remove all on the surface the germs from the crypts will come out and multiply and you have the same condition as before. Even if you could temporarily sterilize it you could not rely on the condition existing more than an hour or so after closing the lids and applying the bandage. Moreover, in attempting to get this much-desired asepsis, we run the risk of doing more harm than good, for in using these agents you may irritate the tissues so that the bacteria that are left will proceed upon the favorable conditions left, denuded epithelium and increased blood supply, and in twenty-four hours you have a worse condition than if nothing had been done.

Just one point I would like to insist upon where I differ with Dr. Randolph, namely, that we should pay all attention to the asepsis of the hands and instruments. We do not rub the eyes with our hands, but the instruments are of extreme importance. As we are not certain of getting all the germs away from the eye before passing any instruments into the eye we should wipe off the eye with a sterile swab. I wipe off the immediate surface with a sterile swab the instant before inserting the instrument.

Dr. J. E. WEEKS of New York—I think it would be unfortunate if the impression should go out that we must forego all attempts to render the conjunctival sac as clear of bacteria as possible. It is well known that the majority of bacteria found in the sac are innocuous. I have done considerable work in that line myself, and from the normal conjunctiva I have isolated ten or twelve distinct varieties of micro organisms, of which only two or three were pathogenic. There is another thing we should bear in mind and that is that the bacteria there present may be pathogenic and yet create no disturbance unless they are present in large quantities. We can so lessen the number of micro-organisms present that they will be relatively harmless. We find some secretions from the lachrymal sac that escapes the casual observation, and if they are thoroughly washed out we have no trouble from them, but if no attempt is made to cleanse the sac we shall have trouble. I

think the attempt to cleanse the conjunctival sac has done much to increase the number of successes in operation upon the eye. To advocate the cessation of these attempts would return us to the bad results given before antisepsis was instituted. It has been my practice ever since my studies began to use an antiseptic solution; I have used the bichlorid in strength of 1 to 5000, frequently boric acid solution, and I have yet to regret the use of those solutions, and have congratulated myself on its use in many cases where I am quite sure I should have had trouble if I had not used it.

The experiments Dr. Randolph has described are very excellent in many respects. In the use of the loop to expose the micro-organisms to a 1 to 5000 bichlorid solution for five minutes, he certainly introduced a mass of bacteria that could not be effectually reached by the solution in that space of time, and there are few who would claim that the death of these organisms would be brought about by such exposure.

Dr. A. R. Baker of Cleveland—I can not contribute to the pathologic study of the subject, but I have thought for many years that the bacteria present could not be washed away, and that probably if they were we should do harm in the efforts. I have my patients come into the hospital the day before the operation, thoroughly cleanse the eyelashes and lids, remove all loose lashes, scrape the lids thoroughly, as I would in preparing for operation in any other part of the body, apply a sterilized bandage and leave it on over night, and if the lids show any secretion in the morning I leave it without operation until I can bandage the lids over night and have no secretion, and so I exclude the possibility of having any large number of micro-organisms present.

Dr. Myles Standish of Boston—I agree with Dr. Randolph as to the necessity of cleansing the lids, but we must remember one other source of infection, however, and that is the tear sac. The question whether we have a tear-sac distended is one of the greatest importance, and the first thing to discover is whether we have a prolific source of irritation in that region.

Dr. F. C. Hotz of Chicago—I only wish to say a few words in regard to cleaning the retrotarsal fold preparatory to operations. It is difficult to reach all parts of the upper folds. I have seen it attempted by passing the nasal syringe or the eye dropper under the lid and expecting to flush the folds sufficient to cleanse them as well as we can, and I think a better method is to turn the lid, and fixing it with the thumb of one hand, pass the lower lid over the eyeball and press it back into the orbit. A slight pressure fully exposes the fold and you can wash it very successfully.

Dr. Lucien Howe of Buffalo—The remark I would make is *apropos* to Dr. Hotz's remarks, that the great difficulty is in reaching the retrotarsal fold. I have followed an excellent device for some time, the credit for which belongs to Landolt, which consists of a glass button with a tube entering near the center. This button is put under the upper lid and by holding in this way [demonstrating] the fold is brought out and can be flushed thoroughly. He recommended it first for flushing the eye in ophthalmia neonatorum, but it is excellent for general use.

Dr. Robert L. Randolph of Baltimore—The point which Dr. Weeks has made is a good one. It is quite possible that the entire mass of organisms was not penetrated by the sublimate, but I should have added that this identical organism has been subjected to the usual tests at the hands of others and found to retain its vitality after immersion in sublimate solutions, so that the facts are as I have stated them, namely, that the organism which is to be found so often in the normal conjunctiva is proof against the germicidal action of sublimate in the strength employed by ophthalmologists.

THE BEST METHODS OF STERILIZING OPHTHALMIC INSTRUMENTS AND SOLUTIONS OF MYOTICS AND MYDRIATICS.

Presented to the Section on Ophthalmology at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1-4, 1897.

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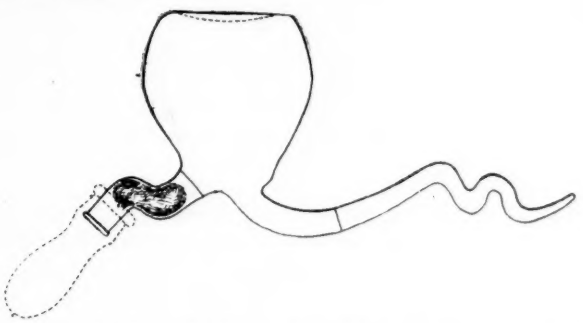
That process of sterilization is of course the most useful which gives the best results and can be most quickly carried out, as boiling, where it is convenient, has been the means par excellence long recognized for destroying bacteria. Specially devised droppers, as Stroschein's[1] and Llewellyn's bottles, in which the solutions of mydriatic or myotic can be boiled before use, are satisfactory, but unless a cap is provided for the exit tube, or the tube itself has a bend that serves as a trap and keeps the solution in the bottle free from dust, there is always danger of contamination of the solution upon repeated handling. Even if the bottle is provided with such a trap, the solution which collects in it should be removed each time before use by gently flaming the tip, or by the use of disinfectants. The mere forcing of more solution through the unsterile tube will suffice to contaminate the contents of the flask.



I have had a flask made which with very little trouble appears to obviate this danger. After use the tip of the bottle may be dipped in a 1 to 1,000 trikresol, or 1 to 5,000 formalin solution (either of which could be conveniently kept in a low, wide-mouthed bottle) when sufficient liquid will be drawn in to fill the bend and serve to seal the flask and prevent the entrance of germs from the air. When the flask is to be used the first few drops of liquid may be wasted and the tip dipped again in the 1 to 1,000 solution to destroy any germs adhering to the outside. These flasks may serve for solutions sterilized by heat or chemicals. Methods of chemic sterilization, or a combination of chemic sterilization and boiling are better than boiling alone. As has been pointed out by Franke,[2] G. de Schweinitz and the writer,[3] and others, the use of boric acid for the purpose of sterilization is unsatisfactory, as its germicidal properties are much less than were originally supposed. The objection to mercuric salts lies in the strength as well as the poisonous properties of the solution which should be used to insure complete sterilization.

Credé[4] has pointed out the value of the acetate and lactate of silver as germicides, and the idea suggested itself that these salts might be useful in sterilizing collyria if they would not be too easily decomposed, but the ready precipitation of the metallic silver made them useless for this purpose. The ever faithful carbolic acid has been largely replaced by trikresol, the latter being less poisonous and more efficacious in weaker solutions, and as the writer[5] pointed out in 1894, collyria made up with a solution of 1 to 1,000 remained thoroughly sterile under the most adverse conditions, and were not irritating to the eye. Upon writing to five prominent ophthalmologists, I learned that only one had used trikresol in place of carbolic acid, but he reported very satisfactory results. It so happened that I had left the solutions used in my original experiments three years ago, in a closet by my working table, and recently I tested them to see if they had become contaminated. One of the bottles

still contained about 5 c.c. of the eserin solution, while the water had almost entirely evaporated from the others, showing that the bottles were but loosely corked and access of dust was possible. The contents of these bottles were tested again and found free from bacteria. Pergens,[6] in 1891, recommended the use of tablets containing a sufficient antiseptic. Valude[7] and Burnett[8] have recommended formalin for preserving collyria and instruments. According to the latter, 1 to 2,000 formaldehyde solution is not too strong, but as some individuals are more sensitive to the action of this reagent, and as it has been found that much greater dilutions of formaldehyde are in most instances useful, I prepared cocain hydrochlorid 2 per cent., eserin sulphate and atropin sulphate 1 per cent., with 1 to 5,000 solution of formaldehyde. Tested within ten minutes afterward they were found sterile. The dilution was next increased to 1 to 10,000 and, to 10 c.c., five drops of a culture two days old of pyogenes aureus were added. Cultures made after twenty minutes showed growth from the eserin solution only, but the next day all were sterile. Therefore, 1 to 5,000 dilution can be relied upon, and even 1 to 10,000 with a little care may be considered safe. Should the solutions become contaminated from the dust, or from contact with an infected pipette, a very few minutes time is all that is necessary for the destruction of the germs by the formaldehyde.

When we turn to the disinfection of instruments we are met at once by another problem, viz., the necessity of perfect sterilization without blunting the edge or tarnishing the instruments.

Randolph[9] has carefully tested the use of absolute alcohol for this purpose, which is recommended also by de Schweinitz[10] and others, who have found the following process satisfactory: First, sterilization in 98 to 99.5 per cent. alcohol for twenty minutes and then rinsing once in sterile water. Out of 100 tubes inoculated by Randolph, from seventy-five instruments treated in this way only five were found infected. When, however, the instruments were purposely infected with pyogenic bacteria, treated with absolute alcohol for twenty minutes and tested, forty-three out of fifty showed contamination.

While these experiments proved that instruments as ordinarily infected in their case could be sterilized by absolute alcohol, they demonstrated also that where septic material was present a more thorough treatment was necessary. Theobald[11] and Lanier recommend washing the instruments in hot running water for a few minutes, while boiling the water, allowing it to cool and then rinsing the instruments in it did not destroy the germs. Formalin has also been recommended for sterilizing instruments, and Alexander,[12] quoting from the clinic of de Buck and Vanderlinden, and his own work, eulogizes its value, advising 1 to 500 solution, which he says does not blunt the instruments nor injure them in any way. To form an idea of the greatest dilution safe and convenient, I tried 1 to 1,000 and 1 to 2,000 formaldehyde solution, and also the gas itself. I used a cataract knife, dissecting knives, and dissecting and hemostatic forceps, the latter on account of their rough edges which would easily retain infected material. It was necessary to leave the instruments which had just been washed in water after a dissection, in a fomaldehyde solution of 1 to 2,000 for thirty-five minutes before the sterilization was complete. With 1 to 1,000 solution, ten minutes gave satisfactory results. The edges did not appear to be blunted, nor was any tarnishing noted during this time. If the instruments were kept in the solution for two hours or more, a slight deposit appeared, but this could be easily rubbed off, leaving the instrument bright and clean. After sterilization by formaldehyde solution the instruments should be dipped in sterile water before being used, to free them from adhering formaldehyde, which might be irritating.

To try the effect of the gas, the use of which has been suggested, on instruments, a small copper drying oven was taken, about 15 c.c. of 40 per cent. formalin solution placed in a dish in the bottom and a small bottle of calcium chlorid introduced to absorb the moisture. It is understood of course that the formaldehyde solution is placed in the box in the first instance some hours before the disinfection is begun, so that the atmosphere may become saturated with the gas. The instruments were washed for a moment in hot water and laid in this oven. Tested after ten minutes they were found sterile. They were then infected with pyogenes aureus, placed in the oven, or box, and tested again after thirty minutes and found sterile. The knives were infected with pyogenes aureus (by leaving the blade in the culture from one to two minutes), then wiped with dry cotton and, after ten minutes contact with the gas, tested by culture. They showed growth. This test was repeated with the difference that the knives after infection were rinsed in hot water in a dish, wiped dry and then placed in the formaldehyde bath. After ten minutes no growth was noted. Dissecting knives and cataract knives tested in this way were found sterile. The hemostatic forceps required fifteen to twenty minutes for sterilization. In practice, in preparing for the operation, it would be a very simple matter to rinse the instruments in hot water, wipe them dry and place them in a bath of formaldehyde gas. They could be safely left here for hours without injury. A wise precaution in practice might be to rinse the instruments sterilized in this gas, just before use, in sterile water, to remove irritating formaldehyde, though no odor of the gas could be detected upon them. This is perhaps the simplest way of sterilizing the instruments, as they could be laid on a perforated porcelain tray in the box and the tray removed to the sterile water when the operation is begun. Fifteen c.c. of 40 per cent. formaldehyde solution should disinfect a box of one cubic foot for a week or more, and as long as it is closed the odor of the gas is scarcely perceptible. In fact, as the instruments are not injured by the dry gas, they might be kept in it continuously.

In conclusion it seems to me that trikresol, 1 to 1,000, with a separate bottle full to hold and rinse the pipettes, or 1 to 5,000 formaldehyde solution and the described dropper for collyria, and formaldehyde gas for of instruments, are from a bacteriologic standpoint the best methods of disinfection.

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DISCUSSION.

Dr. S. M. BURNETT of Washington—In the face of such dem-

onstrations as we have just had, little need be said in regard to this subject. I have had the pleasure of conversing with Dr. de Schweinitz during the time he has been making these experiments, and it seems to me he has offered us the ideal method of dealing with this question. I am particularly satisfied with the report he has made with regard to formaldehyde, because it is carrying out what I thought when I first heard of the use of formaldehyde. It seems to me to possess, in the highest degree, all the essential qualities of a perfect disinfectant. It has not toxic properties and it has a penetrating power that no other disinfectant has. It is certainly something to congratulate ourselves upon that we are now able to lay aside the forms of mercury. They are not satisfactory and we are all satisfied that they are dangerous.

The experiments of Dr. de Schweinitz have proven the value of formaldehyde in disinfecting instruments beyond dispute. We can all have that sort of apparatus in our offices. In regard to the formaldehyde solutions which I first advocated there is some disadvantage because of the evaporation or gas formation, but if prepared freshly that does not apply. Even under those circumstances, however, formaldehyde is vastly superior to anything else we have.

Dr. HAROLD GIFFORD of Omaha—It seems to me there is danger of what I consider by far the most practical method being somewhat neglected. I refer to the action of boiling water. While I have not the slightest doubt that the method referred to is an efficient one, it seems to me there is a source of fallacy that has been to some extent overlooked, namely, that we have not a method of precipitating formalin as we have with bichlorid. When we tried to precipitate bichlorid all the conclusions are found to be fallacious, and to some extent this may be found to apply to formalin. We expose our instruments and after a time put them in the culture room. Now how can we know that there is not enough formalin, in spite of washing, sticking to the instruments to prohibit the growth of germs. Boiling one minute suffices to kill the germ, if care is taken to do the boiling in closed vessels particularly, and if five or ten minutes is given, there is not the slightest danger to the instruments if they have been wrapped in cotton, and you have instruments that are sharp and sterile. Boiling them first and transferring to another solution I consider faulty. Why not take them from the boiling solution and use them at once? That seems to me the simplest method and the best.

Dr. C. F. CLARK of Columbus—I agree with the last speaker in always boiling my instruments wrapped in cotton, and on withdrawing the instrument wipe it with the cotton that was wrapped around it. I feel a degree of certainty that I could not feel in withdrawing an instrument from such a box as this.

Dr. ROBERT L. RANDOLPH of Baltimore—I think that we are under a slight misapprehension as to the exact action of heat. While wrapping the blades in cotton would undoubtedly protect them from mechanical injury, in the boiling process the high temperature would blunt the edge all the same. Dry heat will also dull the edge of the instrument in the same way. It has been shown that not only moist but dry heat, when of high degree, invariably impairs the keenness of a knife.

Dr. E. A. DE SCHWEINITZ of Washington—I might have said that 15 c.c. of formaldehyde solution should disinfect a small box like this for a week, no matter if it is opened three or four times a day, and consequently an instrument case might easily be kept clean all the time.

The amount of gas generated is about 1.5 per cent., and if the odor is strong when the door is opened one can be thoroughly satisfied that the instruments are sterile. In regard to the remark of Dr. Gifford about the method of testing, that might apply where the solution itself is used, but I do not think it applies to the gas. When the instruments are taken out one can not detect the slightest odor of gas, but rinsing them in boiling water would remove any particle of gas that might be adherent.

BEST METHODS OF PREPARING DRESSINGS FOR CATARACT CASES AND THEIR CHARACTER AND COMPOSITION.

Presented to the Section on Ophthalmology, at the Forty-eighth Annual Meeting of the American Medical Association held at Philadelphia, June 1-4, 1897.

BY CASEY A. WOOD, M.D.

CHICAGO.

I must confess that I feel very much like dissenting from the proposition implied in the title given to this communication, because I am in considerable doubt as to whether there is any *best* methods of preparing dressings for the average cataract case. My own experience and the results that I know others to have obtained teach me that when the patient has been prepared for operation and when the extraction has been deftly and completely accomplished, when the lips of the corneal wound have been carefully approximated and when no intra-ocular debris rests between the latter, when, in other words, the operation leaves nothing to be desired, the dressing is of little or no importance. In such a case it is of no moment whether the lids be simply closed with a strip or two of isinglass plaster or whether the eye be subjected to the elaborate toilet recommended by many distinguished writers and teachers. Indeed, in words which I have elsewhere used, as to the form that the dressing should take, we recognize today about the same difference of opinion that existed in the time of von Graefe and Beer; one school cries out for heavy bandages and absolute rest, the other for liberty and no dressing. One extremist applies to both ocular regions a thick flannel or gauze bandage over pads of borated gauze or even iodoform cotton, while other enthusiasts advocate a narrow strip of isinglass or other plaster, just large enough to keep the lids together. Doubtless each one of us considers his method the best, but even a superficial study of the course pursued by the healing process after cataract extraction will show that the great majority of cases do well with any kind of bandage or with none at all. If the operation be correctly done, it does not matter much whether or not the dressing be negatively aseptic or positively antiseptic. If, however, the operation fail in any important particular, the question may well arise as to what description of dressing is most likely to assist repair of the surgical traumatism, both by preventing extra-ocular infection and by favoring apposition of the margins of the wound. The first indication is probably best met by some covering for the eye that, while not entirely excluding ventilation, will yet be sufficient to prevent the entrance of morbific germs and irritating dust. It should also be sufficiently absorbant to take up the tears and mucus that commonly flow from an eye that has recently been operated upon. I have been unable to convince myself that a dressing impregnated with germicides of sufficient power to destroy any pathogenic organisms that have lodged in or about the eye does not do more harm than good. At any rate, the dressing is not the proper agent that should be depended upon to do the work of sterilizing the conjunctival sac, lids and lid edges. If this is attempted the hyperemia which the bactericide generally sets up is, at least positively harmful in the great majority of cases.

What good purpose is subserved by the attempt, so often made, to keep the corneal margins *in situ* by the use of bandages and other appliances? You are all well acquainted with these devices, the little rolls of cotton (aseptic and antiseptic), the simple roller, the starch bandages and other appliances of a similar nature. I have tried and discarded all of these, as I have found them entirely unnecessary in uncomplicated cases of extraction and never saw any good come from their employment even when in times of trouble, a mechanical support seemed desirable.

In my hands sufficient protection from external irritants, combined with an effective provision for the

absorption of post-operative discharges, may be secured by the following dressing, carefully sterilized and rolled in a sterilized towel until the moment of application. It is far from being original with me:

A layer of borated or plain absorbent cotton or wood wool two or three millimeters in thickness is applied to the surface of two single layers of sterilized gauze. These are together cut (so that they will adhere and form one piece) with a pair of scissors, in oval form and of a size to cover the orbital openings, reaching from the eyebrows to below the inferior orbital margin. Three pieces of adhesive plaster, each three or four inches long, keep this dressing in place and are so arranged that no portion of them presses upon the eyeball. This is accomplished by placing the first over the upper border of the pad, and firmly attaching it to the skin above the superciliary ridge; the second is carried parallel with the nose; the third completes the triangle. Such a dressing filters the air passing to the eye of its germs and dust; it is comfortable to the patient, does not unduly press upon the eyeball and readily absorbs lachrymal and other secretions. It does not, like the roller, starch and antiseptic bandage, encourage vascular congestion, and, finally, it may be impregnated or smeared with any agent that the surgeon cares to apply. Neither the patient nor his officious friend is at all likely to succeed in removing it, although the surgeon may examine and drop collyria into the eye readily.

What can be more provoking to the surgeon than to find, after obtaining a good operative result, that a careless nurse or a restless patient has added a newly opened corneal wound, a hernia of the iris or loss of vitreous to his other anxieties? A finger thrust, a pillow end jammed into the eye, a slight blow upon the globe or any other of the dozen little accidents that may happen to a person with imperfect vision moving about in darkened rooms, may nullify the most brilliant and correct efforts of the operator. Especially when night comes on, or when the patient begins to move about, should the eye be protected from injury by some sort of a shield or mask. Fuchs uses the wire-woven protector, introduced as long ago as 1883. There are many modifications of this mask in the market, one of the best of which has been suggested by Frothingham and Würdemann.

Certain operators who make use of the roller bandage gain protection by starching the dressing. When this has dried the eye will receive a considerable blow without injury.

Snellen has used a turtle-shaped aluminum shield, about ten centimeters long and five wide, placed over the eye and held in position with strips of adhesive plaster; it forms an admirable protector. One of the best shields I am acquainted with is the papier mache half-mask, which, when carefully adjusted to the nose and surrounding parts, makes a light, comfortable and effective protector. A small proportion of patients object to wearing any mask, complaining that it prevents them from sleeping and makes them nervous. In such cases I find that one may get along very well with a large, stiff and very concave eye shade placed over the dressing and held in place with a piece of rubber plaster.

DISCUSSION.

Dr. H. KNAPP of New York—I should like to begin with the paper of Dr. Wood because that is the beginning of the after-treatment. I think the object of the bandage is to immobilize the eye. We can fairly state that the prime factor in obtaining healing by first intention is rest. If that is obtained for the eye an immense gain has been made. Among the bandages I think there is none so good as the old binoculus. Dr. Wood mentioned it but gives preference to another kind of bandage, which I endorse and have used for about ten years. I usually use a pad of sterilized gauze, two or three layers, and this is put on moistened in a very weak solution of bichlorid. Upon that I place a pad of absorbent cotton, dipped in the solution also, and if you do that you can mold it exactly to the eye and secure a perfect splint. If it is applied dry it is impossible to put the plaster strips on because the cotton is resilient and does not hold it. It is easy to put one plaster strip over the nose, one over the brow and then a cross strip. This is all right where there is a sterile field and the operation has been perfect. It is convenient to the patient and can be removed readily. Nevertheless, we have a certain number of patients where the condition of asepsis has been thorough that are restless and continually move the eye during and after the operation, and there I think the binoculus is better. I think too, when the patient can be relied upon not to toss very much it is the most comfortable bandage. Anything that becomes stiff is unpleasant. Professor Alt tried all the bandages upon himself and says that the most unpleasant is the isinglass strip placed upon the eyeball.

I think it is proper to look at the eye next morning, and in the case of a simple extraction it is essential, for there may be a prolapse and it is best to cut that at once, when you can make a clean iridectomy, and very little harm has been done by having attempted to operate upon a patient who was not fit for simple extraction. I open the eye next day, look at the edges of the lids and the conjunctiva first, and if a simple extraction I look also at the wound to see if there is anything the matter with it. Generally a prolapse indicates itself by pain, but there are some cases where the patient says that he has felt nothing. I do not think it is proper to leave the small prolapse to nature. It requires some after-treatment to help the healing forces of nature.

If there is no secretion I do not wash the eye at all, but if there is even the slightest amount I wash it with plain warm water and get the eyelashes free of any material that would be apt to decompose and by its irritating qualities produce more secretion of the conjunctiva. I use germicides as little as I can, scarcely putting anything into the sac, but when the lachrymal sac comes into play I am particular to have that cleansed carefully.

In regard to beginning suppuration of the flap, I have found the different methods used are more or less unreliable, and I have seen as many cases get well by the cautery as by other means. I think if we stick to simple methods we shall do better than by using too much treatment. We still lack simplicity, and we are not yet at the end of our search.

Dr. MYLES STANDISH of Boston—I would like to relate a case I operated upon some years ago, an old man with cataract in both eyes and with purulent discharge from each tear sac. He had been to the infirmary for a number of years and each surgeon had put him off with antiseptics for the tear sac, without ever stopping the discharge. The old gentleman finally came back and said he was resolved to risk an eye. He knew the chances of losing it, but he was taken into the house, the sac cleansed and the eye operated upon. After the extraction the lids were opened and iodoform in large amount was literally filled into the sac. The next morning the other eye had apparently a teaspoonful of pus, but the eye operated upon was dry. This treatment was continued and at the end of eight or nine days the bandage was removed and the iodoform discontinued, but at the end of twenty-four hours he had an infection of the entire edge of the wound. The actual cautery was used, iodoform was again begun and kept up for two weeks. No recurrence of the pus showed itself and the result was good.

Dr. J. C. DUNLAVY of Sioux City, Iowa—I wish to speak of the advice to leave the eye for four days without examining it. It appears to me that if for no other reason than the fear that iritis might occur, four days is entirely too long to let it go without observation. As to the treatment of prolapsed iris, the question of operating or letting it alone should depend very largely on the character of the prolapse. If in the form of a bead and you have reason to believe it will not be taken care of, naturally the sooner you cut it off the better, but if more or less flat, I believe nature will take care of many of those cases.

As to immobilizing the eye with a bandage, I know we have talked about it for many years, but having tried the bandages on my own eyes I am satisfied that it can not be done and the tighter you apply the bandage the more danger you will have when you have a patient that will not keep quiet. There is a certain number, as Dr. Knapp said, that will try to move the eye. In those cases, by a certain amount of education, you

can occasionally obtain better results by leaving the bandage more or less loose.

Dr. LEARTUS CONNOR of Detroit—In cases in which it is desired to cleanse the outside of the eye, or the eye itself, I have found a procedure which is a most efficient method. It is devoid of any possibility of injury to the eye. Hot water, as you all know, is an extremely efficient agent in many ways. A tumbler is taken, filled with water at as high a temperature as the patient can bear, the hotter the better; the tumbler is brought to a level in contact with the nose [demonstrating], and then tipped up as the head is brought forward, so that the eye is entirely immersed in the hot water. You may use an antiseptic solution if you please, but it is the method of making the application which I desire to place before you. You get the effect of moist heat without any mechanical disturbances of the relation of the eyelids to the eyeball.

Dr. ALBERT B. HALE of Chicago—I have used the method Dr. Wood has described. He mentioned some very nice experiments about immobilization. He says that if one eye only is protected there is a tendency to winking and the lid is not held so thoroughly as it ought to be; if both eyes are protected and the patient put into a dark room the tendency to winking is much reduced.

Dr. J. A. LIPPINCOTT of Pittsburg—I have been very much interested in the remarks in regard to immobilization and I suppose that when it is spoken of it is immobilization of the lids that is meant, for immobilization of the eyeball is impossible. Immobilization of the lids is possible by means of plaster, and while there may be some objection on the grounds of discomfort, I think this can be removed by the use of very thin and properly prepared plaster.

I was also interested in the statement that there is no way of sterilizing the plaster. I would like to show a box I got up some time ago for containing plaster [exhibiting box]. It is a small, circular, metal box with a split in the side of it, from which one end of the plaster can be drawn out. There is little movement allowed so that the cover slips slightly on the box and one can close the slit from which the plaster extends, almost absolutely. This box can be sterilized quite readily by putting it in a dry oven. All my experiments proved it to be sterile and I think that with the instrument shown by Dr. de Schweinitz it could be absolutely sterilized without injury to the plaster. It can not be used in the steam sterilizer. You draw out the plaster as you wish to use it and what remains in the box is in a reasonably good condition and does not require to be sterilized every time it is used.

Dr. F. C. HOTZ of Chicago—I wish to add my endorsement to the necessity for observing the first principles of surgery that wounded tissue should have as complete rest as we can secure to it if we wish natural healing to take place. This we can only obtain by binocular bandages so far as the eye is concerned. I still am an advocate of bandaging both eyes. It is the principle to observe and not the particular method. Another point I wish to mention is in regard to the pressure bandage. It was mentioned in one of the papers, that if anything happened to the wound a pressure bandage might be used to replace the prolapse. This is irrational treatment and if we take so much precaution to keep the eye protected from pressure I do not see why we should intentionally put pressure upon it.

Dr. S. L. ZIEGLER of Philadelphia—I have always used the lighter isinglass plaster dressing for cataract cases, by placing a strip across the upper lid and a cross-piece coming down on the cheek to hold the lid perfectly quiet, thus forming a T shaped splint. As soon as desired we can remove the vertical cross piece. The strip on the upper lid will sufficiently immobilize the eye and at the same time allow the eye to be opened wide enough to wash it. In addition to this a light dressing is applied consisting of a piece of gauze with a little cotton laid over the margin of the lower lid to catch the moisture (aqueous blood and tears), and over this the black Liebreich patch. The unprotected eye is also immobilized in the same way. This dressing seems to me to answer every purpose and is sufficiently cool to avoid conjunctivitis. All dressings are removed on the fourth day.

Dr. DUDLEY S. REYNOLDS of Louisville—I wish to emphasize the necessity for securely fixing the unoperated eye and I think the lightest possible dressing constitutes the most desirable form. I am in the habit of varying the dressing in accordance with the prominence of the brow and cheek. A protruding eye is more readily pressed upon by dressings placed over it than a receding one. I am an advocate of quiet for the wounded eye and of non-interference with it so long as it manifests no sign of trouble, but the dressing should be of such a character as to enable the surgeon to remove the dressing on the slightest indication of trouble.

Dr. J. A. WHITE of Richmond—In a paper of ten minutes it is impossible to go into details that are necessary to put yourself entirely right and therefore criticism is made because you are not understood. Someone stated that it was strange that I did not look at the eye before the fourth day. I did not say that; I said I did not examine the eye unless necessity called for it. I rarely take off the bandage before the third, sometimes on the second day. One of the most distinguished ophthalmologists in America wrote me that he did not look at the eye for eight days, and that is the result of his forty years' practice. I was astonished at it, as you will be.

In regard to prolapse, I have simply stopped operating upon it unless I know that it is there immediately after the operation, because the cases I have lost are the ones that I meddled with and the ones I let alone usually get along very well. Until I find that method giving me worse results than the other I shall still let them alone.

Dr. C. A. WOOD of Chicago—There is some confusion in referring to the immobilization of two different structures, the lids and the eyeball. The reason why I said it was difficult to understand the rationale of bandages pressing upon the eyeball is that the pressure is made there upon the anterior segment. When the eye is closed it is the equatorial region we have to deal with and such a pressure is likely to do harm because it is distributed over the wounded part of the eye and brings about the very condition we wish to avoid. As to immobilization of the lids I think I have gained as good results by impressing upon the patient the absolute necessity of keeping the eye closed and by speaking about it two or three times a day. I have obtained as good results in this way as by attempting to keep it closed by bandages.

I am glad Dr. Lippincott has been able to sterilize the plaster. I undertook a number of such experiments and found that when one succeeded in accomplishing disinfection, the plaster was so affected that it was useless.

ASTIGMATISM FOLLOWING CATARACT OPERATIONS AND OTHER CORNEAL SECTIONS.

Presented to the Section on Ophthalmology, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1-4, 1897.

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The brief observations here presented are to be regarded as addenda to the paper on the subject read by the author before the Pan-American Medical Congress in 1893.

Probably in every case of cataract extraction the necessary corneal section is followed by a permanent change in the corneal curvature and refraction. In a few cases the change in curvature is such as to reduce or correct, or slightly over-correct, a previously existing asymmetry of the cornea, and the astigmatism caused by it. In the larger proportion of cases the ultimate effect is a considerable astigmatism, greater in amount and essentially different in direction from any astigmatism that may have been present before the operation.

The fact that the astigmatism is new, and also that it is due to change in the corneal curves, give it increased importance. Those who always have had astigmatism never perceive the distortion of retinal images that it causes. Those who acquire astigmatism slowly may feel some disturbance on account of such distortion, but are not distinctly conscious of its effect. Those who have astigmatism corrected in early life quickly become accustomed to the greater distortion of the retinal image caused by correcting lenses. But cataract extraction is usually done at an age when acquired astigmatism is always found very annoying, when the full correction of astigmatism, congenital or long present, is sometimes not practica-

ble, and astigmatism after cataract extraction comes on suddenly, always causing marked distortion of the retinal images. Hence, it is certain to cause annoyance; and its correction is generally a real service and one which is appreciated.

Post-operative astigmatism necessarily follows such a corneal section, although it is not necessarily always permanent. The form of the cornea depends on the intra-ocular pressure and the relative resistance of different parts of the corneo-scleral coat. Only when intra-ocular pressure is entirely removed, as it is by the escape of the aqueous humor through the corneal section, can the cornea take a form determined entirely by its own structure. This does not usually differ from that which it had before the operation. When the healing of the corneal wound becomes sufciently advanced to cause the retention of aqueous humor, the intra-ocular pressure begins to rise and gradually increases until it reaches the normal.

If the resistance of the sclero-corneal coat were entirely uniform throughout its whole surface, the intra-ocular pressure would cause the eyeball to assume the shape of a perfect sphere. The departure from this perfectly spherical shape is determined by the difference of resistance of intra-ocular pressure by different parts of that coat. Thus, the reinforcement of the cornea and sclera in the neighborhood of the sclero-corneal junction by the ring of tissue constituting the ciliary body, strengthens the coat at this point so that it resists the intra-ocular pressure and causes a depression, making the corneal surface the part of a smaller sphere set into the side of the larger sphere of the sclera.

After corneal section, the cornea at the line of incision is weakened as compared with the remainder of the sclero-corneal coat and correspondingly gives way or bulges. Its bulging at this point necessarily causes an equivalent flattening in other parts of the same meridian. The extent of this bulging and distortion is proportioned to the relative weakness of this line of corneal tissue. Hence, when the cicatrix is weakest, the bulging and distortion and consequent astigmatism are greatest.

Generally the first measurement after cataract extraction shows the highest astigmatism; but not unless the wound has become thoroughly closed and the tension of the eye restored to normal. Thus, in a recent case on the fourteenth day after extraction, the astigmatism was found to be only 2 D. But a week later it had risen to 10.5 D. After this it gradually declined in the usual manner. At the first measurement the anterior chamber had been re-established for some days, and it was not noted that the tension of the eye was below normal. Yet the subsequent change of astigmatism can only be accounted for on the supposition that at the first observation the ocular tension was still lower than at the time of subsequent observations. With this exception the cases that I have watched have shown the highest astigmatism at the first examination; and only very few have shown a slight temporary increase of astigmatism at any time afterward.

The highest post-operative astigmatism I have yet encountered was 26 D. in one of the cases mentioned in my former paper. The case was one of simple extraction and of normal healing. In two and one-half months the astigmatism had fallen to 0.75 D.

The amount of astigmatism that remains permanently is always very much less than that discovered at the first testing, two or three weeks after a cataract extraction. While this is often 10 D. or upward, the final amount is very rarely over 3 D. In one patient I have seen it 4.5 D. in the right eye and 5 D. in the left, three and a half years after the cataract extraction. But in no other case have I seen it remain as high as 4 D.

The practical application of this fact is that where one is compelled to prescribe glasses within a few weeks after extraction, which glasses will be worn by the patient when out of the reach of anyone who can properly measure refraction, it is better, however high the astigmatism may be at the time, to give a cylinder of not over 3 D. This will almost certainly in a few weeks be nearer the proper correction than the lens indicated soon after operation. In prescribing such glasses it is also important to make the spherical somewhat stronger than is at first required, because it is equally certain that after the first few weeks there will be found an increase of hyperopia as well as a decrease of astigmatism.

All observers have noticed that in post-operative astigmatism the cornea is flattened in the meridian at right angles to a straight line joining the ends of the corneal wound. An incarceration of the iris, or irregularity of healing due to other causes, may occasion a slight variation in the meridians of astigmatism, but such variations in direction are slight. In many cases no change occurs in the direction of the principal meridians during the weeks or months through which the astigmatism continues to diminish.

In regard to the influence of different forms of cataract operations, on the amount or course of the astigmatism, I am still unable to recognize any decided influence from the position of the corneal section. This seems rather strange. One would be inclined, *a priori*, to expect the greater astigmatism when the corneal section was situated near the area of the cornea through which the rays had to pass, or from which the reflections of the ophthalmometer were to be obtained. It is possible, however, that the depression at the sclero-corneal junction permits from the same incision a greater distortion of the cornea when the incision is situated at the periphery; and that thus it serves to balance the effect of proximity of sections placed nearer to the center of the cornea.

CATARACT STATISTICS WITH COMMENTS.

Presented to the Section on Ophthalmology at the Forty-eighth Annual Meeting of the American Medical Association, at Philadelphia, Pa., June 1-4, 1897.

BY HERMAN KNAPP, M.D.
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Statistics of cataract operations can be made from different points of view. It is plain that complicated cases do not give as favorable results as uncomplicated ones, and therefore almost all statistics refer only to uncomplicated cataracts. Yet this does not make them comparable with one another, for Dr. A. will count cases among the complicated which Dr. B. will consider uncomplicated. To present a faithful picture of what an operator has accomplished, all his operations should be counted, or if he excludes some he should supplement his statistics by a special report, best with abstracts of the cases.

Another point in which reports differ is the standard of success and failure. Shall we make success dependent on the acuteness of sight, or on the perfection of the recovery? Sometimes we have to extract

lenses from incurably blind eyes, say a chalky, partially or totally dislocated lens in a young person, the eye being otherwise in good shape and its fellow normal. If we succeed in getting that cataract out without mutilating the eye, we do not only improve our patient's appearance, but his chances for the preservation and quiescence of the eyeball. To accomplish this requires greater skill than most other cataract operations, and the surgeon is entitled to put such a case to his credit. Let him call it an "operative success." It is questionable, however, to classify under this heading extractions that have been followed by a smooth recovery, but will yet require an after-operation to clear the pupil from remnants in order to restore sight. However probable the good result of such an operation may be, we are not justified in counting those cases among the perfect results until their vision *is* perfect. I find, for instance, in a very excellent report as to accuracy and completeness of the records of all cases of extraction[1], the summing up of the second series of 100 cases as follows: "Full success in ninety-seven cases. Visual acuteness from 5–5 to 5–30 in seventy-two. In twelve cases V. was not tested, the recovery not yet being complete, or secondary cataract being present; but in all, the convalescence had so far advanced that a good result could confidently be expected."

The following remarks are based on an analysis of the last 1,000 extractions I have made:

Intercurrent with the first 600 consecutive cases there were thirty which I checked off because they had complications so grave as to render the restoration of useful vision improbable. I have made use of this series on a previous occasion, for the discussion of special points connected with the great question of cataract extraction[2]. The series of the 400 consecutive cases comprises all extractions, without an exception, that I operated on from Sept. 19, 1894, to May 17, 1897.

Reserving a detailed communication for the *Arch. of Ophthalmology*, I beg to present for your consideration and discussion the following topics:

1. *Complicated cataracts, their nature and treatment, with final results.*—Among the 400 cases fifty-seven, that is 14.25 per cent., showed the one or other complication, namely: 1. Diabetes, six cases; five smooth, one protracted recovery. This agrees with my previous experience that diabetes has not so bad an influence on the recovery from cataract operations as is stated by some authors. 2. Albuminuria, two cases; good recoveries. 3. Diabetes and albuminuria, two cases; good recoveries, the one had retinal hemorrhages which two years later had disappeared with S. 20/20. 4. Gout, one case; healing slow, result good. 5. Rheumatism, one case; good. 6. Insanity, three cases; two failures by suppuration, one good visual result, but patient on the day of discharge committed suicide. 7. Chronic bronchitis, cough, two cases; one good, the other perception light (partial suppuration). 8. Traumatism, three cases; good. 9. Foreign body in lens (came out with cataract), one case; good. 10. Chronic dacryocystitis, six cases; three good, three failures by suppuration. 11. Excessive myopia, four cases; good, but one had sudden detachment of the retina seven months after discission. 12. Synchysis, three cases; good. Diagnosed by copious escape of watery fluid during the section, cataracts expelled by external manipulation. 13. Choroditis, disseminate and atrophic, three cases; recoveries smooth. 14. Chronic iridochoroiditis, eight cases; seven yielded satisfactory results from V. 4/200 to 20/70, one was a failure by closure of pupil after cysto-iridectomy. 15. Maculæ cornæ, four cases; good. 16. Chronic glaucoma, three cases; recoveries smooth. 17. Optic nerve atrophy, two cases; recoveries good. 18. Nystagmus, congenital, one case; good. 19. Chalky lens, dislocated into anterior chamber, one case; good operative success. Lens expelled by external manipulation with permanently round pupil. 20. Previous syphilis, one case; good. There were eight failures among the fifty-seven cases of complicated cataract, *i. e.*, 14 per cent. Of the cases of dacryocystitis 50 per cent. were lost.

2. *Extractions with iridectomy, their indications and visual results.*—The conditions which determined me to make an iridectomy during or prior to the extraction in the last 400 cases were as follows: 1. Tendency to iris prolapse, nine cases; 2, glaucoma, preliminary iridectomy, two; 3, diabetic retinitis, preliminary, one; 4, albuminuria, preliminary, one; 5, patient demented, one; 6, profuse hemorrhage in anterior chamber, two; 7, patient unmanageable, eight; 8, iris fell over knife, five; 9, rigidity of sphincter iridis, one; 10, loss of vitreous, one; 11, no reason stated; *a*. preliminary two, *b*. simultaneous three, five; 12, peripheric section, two; 13, synchysis, rupture of suspensory ligament, lens tremulous or dislocated, nine; 14, iritis, iridocystitis, iridochoroiditis, five; 15, corneal section insufficient, iris bruised, one; 16, splinter of wood in lens, one; 17, to remove thickened capsules, one; total, fifty-five cases, *i. e.*, 13.75 per cent. were combined with iridectomy.

On these fifty-five cases fifteen *secondary operations* were made, namely: Discission, eleven; extraction of capsule, two; iridectomy for consecutive glaucoma, one; cyst-iridectomy, one.

The final visual results were as follows: *Good, i. e.*, S. 20/200 to 20/20 in forty-two cases; *moderate* (S. 2/200 to 18/200), six cases, namely, from cataract accreta one, glaucoma chronicum two, retinitis diabetica one, synchysis one, no cause noted one; *failure* seven cases, viz., iridocyclitis six, tendency to prolapse and chronic conjunctivitis one.

3. *The reactive processes* may be divided in two groups:

A. Inflammatory.—1. Mild iritis, six cases; five with good, one with moderate (S. 10/200, complicated, good operative recovery) vision. There was a moderate number of non-irritative filiform synechiæ, simple agglutinations of the torn pupillary border of the iris to the shreds of the incised or lacerated capsule. These had no influence on the visual result and did not thicken the center of the capsule. 2. Protracted iridocyclitis, two cases; *a*, angular incarceration with temporary + T. pilocarpin, S.=1/200; *b*, iris wounded with knife; abscised. Remnants laboriously pressed out 1–∞. 3. After-hemorrhage into anterior chamber, 20/40. 4. Slow closure of wound; patient aged 83 years; kept in bed; on eleventh day pneumonia and pleuritic effusion. Complete recovery. Discharged thirtieth day; V.= 20/40. 5. Partial purulent wound infection, two cases; *a*, slight hypopyon. Recovery 20/200, vitreous still turbid. *b*. Old iritis, iridectomy twenty-two years previously. Difficulty in delivering lens (cat. nigra). Anterior chamber opened daily 1–∞. Cornea clearing. 6. Total suppuration, four cases; all from wound in-

[1] Zenker: Report of 1,000 cataract extractions made by H. R. H., the Duke. Dr. Carl in Bavaria, Wiesbaden, Bergmann, 1895.

[2] Transactions of the Eighth International Ophthalmological Congress, Edinburgh, 1894, p. 14, etc.

fection in laborious operations. In three the infection was primary, in one secondary by exposure on the fifth day; remained partial until the fourteenth day. S.=0, in all.

B. Mechanical.—1. Anterior synechiæ. A goodly number of small adhesions to the scar was noticed with distorted pupil, but good sight and no irritation. One case was severe; broad, traumatic adhesions on sixth day, slowly developing glaucoma. Patient having good sight, left hospital secretly, returned in twenty-five days with pronounced glaucoma, Tn.+2, anterior chamber totally obliterated, iris and lens touching cornea. Fingers 1′. Iridectomy with Graefe's knife. Escape of vitreous as usual in such cases. Eye immediately free from pain and irritation, anterior chamber filled again, Tn., fingers at 3′. 2. Prolapse of iris twenty-six cases, *i. e.*, among 343 simple extractions,=7.6 per cent. It occurred mostly in the first night, frequently on the second or third day, rarely later. The eyes were inspected daily and the prolapse abscised at once; cocain anesthesia was sufficient; in two, general anesthesia was administered. The latter should always be resorted to if the patient is nervous or refractory. The recovery and vision were good in all cases but one, where from chronic cough, prolapse occurred on third day. The prolapse was abscised but partial suppuration set in; S.1/∝. Good projection.

4. *Secondary operations.*—The 400 extractions were succeeded by 160 after-operations, *i. e.*, 40 per cent. They were: 1. Enucleation, one case, viz., traumatic dislocation of lens into the anterior chamber; extraction leaving capsule in did not relieve the glaucomatous iridochoroiditis. 2. Iridectomy in one case of glaucoma following extraction, raised 1/200 to 3/200; good operative result. It might have been a good visual result had the patient not withdrawn from treatment for two months. 3. Iridectomy in three cases of glaucoma following discission; immediate relief, rapid recovery and good sight in all. One case of acute glaucoma occurring on the fourth day after the discission, was cured by eserin and subcutaneous injections of morphia. 4. Extraction of thickened capsule, after discission with one and two needles had failed, two cases; results good. 5. Discission 153 cases, *i. e.*, 38 per cent. The visual improvement was very considerable. The ultimate visual acuteness in the 139 uncomplicated cases was: 20/20 in nineteen: 20/30 in forty-three; 20/40 in thirty-two; 20/50 in seventeen; 20/70 in thirteen; 20/100 in ten; 20/200 in five. It had deteriorated the sight in no case; it left the sight as it was in two cases; it was followed by acute glaucoma in four cases (1 per cent.), which by eserin in one and iridectomy in the three other cases, was cured with the ultimate vision better than the primary. In one case the discission was successfully repeated two months later, the opening of the capsule having partially contracted.

One of the cases of glaucoma assumed a most serious aspect. Under the picture of cyclitis hypopyon developed, for which no source of infection could be discovered. The iris began to bulge and the eyeball-tension rose to Tn.+1. The pupil remained open. An iridectomy put an immediate stop to all the symptoms. Pain, bulging of iris, and + Tn. disappeared, the vitreous cleared up and the patient regained excellent sight. The whitish sediment at the bottom of the anterior chamber can not have been purulent, *i. e.*, real, infective, hypopyon, but merely puriform, *i. e.*, bland, such as we find it on introducing aseptic irritant substances into the anterior chamber. The other cases showed no alarming symptoms, most of them no reaction at all.

5. The visual results of the last 400 cases was as follows: From 20/200 to 20/20, 359 cases, *i. e.*, 90 per cent. good results; from 1/200 to 18/200 twenty-nine cases, *i. e.*, 7 per cent. moderate results; from 0 to 1/∝ (perception of light) twelve cases, *i. e.*, 3 per cent. failures. Full vision, 20/20 was obtained in twenty-three cases, 6 per cent.; almost full vision (20/30) in seventy-one cases, 18 per cent.; vision good enough for all purposes (20/40) in sixty-seven cases, 17 per cent.; 20/50 in sixty-four cases, 16 per cent. The visual results of the preceding 600 cases (not before published) were as follows: 20/20, 106 cases; 20/30, 156; 20/40, ninety-three; 20/50, sixty-three, etc. V. from 20/200 to 20/20, 572 cases,= 95 per cent., good; V. from 1/200 to 15/200, sixteen cases,= 3 per cent., moderate; 0 and 1/∝ twelve cases,=2 per cent., failures. The results in that series are somewhat better, but it has to be remembered that thirty cases intercurrent with and additional to the 600, have been omitted as offering too poor a prognosis. Thirty cases out of 600 is only 5 per cent., which should be borne in mind when these statistics are compared with others that rest on a different basis. Adding the results of the two series, *i. e.*, a series of 1,000 successive cases, we obtain according to the conventional calculation: Good vision in 93.1 per cent.; moderate in 4.5 per cent.; failure in 2.4 per cent.

Combining as above the results of the two series, we obtain the following data on points also discussed in this paper. Of the 600 extractions of the first series fifty-two, *i. e.*, 8.6 per cent[3]. were combined with iridectomy; of the 400 extractions of the second series fifty-seven, *i. e.*, 14.25 per cent., which makes 52+57 =109 iridectomies in 1,000 extractions, *i. e.*, 10.9 per cent. Prolapse of the iris occurred in fifty-five cases of the first series, *i. e.*, fifty-five in 548 cases of simple extraction, which represents 10.3 per cent. In the second series there were twenty-six cases of iris prolapse among 342 simple extractions, *i. e.*, 7.6 per cent. In the two series there were eighty-one cases of prolapse of the iris in 891 simple extractions or 9.1 per cent. In 300 cases of simple extraction published by me before (*Arch. of Ophth.*, 1888, '89, '90) there were in three separate series severally 8 per cent., 6 per cent. and 12 per cent. of prolapse. In an extended series of cases every complication occurs. At the Eighth International Ophthalmological Congress (l. c. p. 17) I summed up the results of the fifty-five cases of prolapse which happened in the 600 cases under consideration: Forty-nine had good vision, two had moderately good vision, two lost the sight in the eye operated on, and two lost the sight in both eyes, in the non-operated eyes by sympathetic ophthalmia. The latter appalling calamity is fortunately rare and occurs where the iris is wounded, in the combined extraction oftener than in the simple. Secondary operations were performed in 66 per cent. of the first series, in 40 per cent of the second. They were discissions in almost all cases and will sum up higher in the latter series, when more time has elapsed for patients to return.

DISCUSSION.

Dr. G. E. de SCHWEINITZ of Philadelphia—I am in hearty accord with the suggestion that cases of cataract presenting marked complications should be recorded separately. The

[3] See Trans. Eighth Internat. Ophth. Congress, Edinburgh, 1894.

operator is certainly entitled to the credit of an "operative success," even if the visual acuity does not reach that standard which we call a success, provided the nature of the case was such that it precluded the possibility of the restoration of a visual acuity amounting to one-tenth. In the Philadelphia Hospital I operate on many complicated cases—insane patients, cases with chronic conjunctivitis, chronic bronchitis and cases with advanced general diseases, for example widespread arteriosclerosis, diabetes, etc. Some of my results have been surprisingly good; others have been poor, although in all my experience in this hospital I have only once had a suppuration, and that was localized. In another hospital I have had two general suppurations and lost the eyes, one occurring after extreme prolapse of the vitreous, the patient at one time having had sugar in the urine, and the other in a patient who had chronic conjunctivitis and seborrhea of the face. In patients with chronic bronchitis I prefer the combined operations. Insane patients are usually satisfactory; occasionally I have been obliged to use a form of straight-jacket after the operation. It would be instructive to compile a statistical table of the usual results in cataract patients at long periods, one or even years, after operations.

Dr. S. M. Burnett of Washington—My own experience has been that astigmatism immediately following cataract extraction is sometimes very enormous; that is, that at the end of two weeks there may be an astigmatism ranging as high as 8 D. It is evident that the visual acuteness does not then represent to the surgeon's credit what it should. The cornea does not settle down to the normal curvature under three months after the operation; I have noticed a gradual change for the better up to that time. So in registering the acuteness of vision some idea of the time of taking it should be taken into consideration before we can accept them as definite results. Usually the longer the time after the operation the examination is made, the more to the credit of the surgeon will it be.

Dr. H. B. Young of Burlington, Iowa—These remarks remind me of an experience I had some time ago with a patient who had glaucoma in one eye and cataract in the other, which was operated on. At the end of six weeks the vision was so poor that I thought it a failure. The Javal ophthalmometer showed an astigmatism of 8 D. With proper correction she could read any type on the page. Four months later she had the same good vision with a correction of six diopters.

Dr. L. Webster Fox of Philadelphia—At present each man is a law unto himself as to the relative results he gets. Some fixed law should be established, and I think we could do no better than follow Dr. Knapp, whose experience is second to none in this country and equal to many of those abroad. Of course we all try to arrive at J. 1. and 20-20, but we are frequently disappointed. Our results may be brilliant at the time of operation, but through some change brought about by senile changes in the individual they fail. Quite a number of cases recur to me, in which after a severe winter the patient has come back complaining of failing vision. I remember in one case with a very brilliant result, 20-20 and J. 1., the vision has fallen to 20-70 and I can find no cause for it. He is eight years older than he was when operated on, and I think there is a sympathetic condition growing with his senility.

Dr. F. C. Hotz of Chicago—It seems to me, if I understood Dr. Knapp right, that in his method of registering cases he introduces a new meaning to the term complicated cataract that might lead to confusion. Under this term so far is understood complications in the eye, but what Dr. Knapp calls complications includes syphilis, bronchitis and other diseases, and thus the number of complicated cataracts would outnumber the uncomplicated ones.

Dr. Dudley S. Reynolds of Louisville—I hardly think it is fair to classify those ultimate results found in aged people as having at all to do with the operation. We all know how prone old people are to changes in the choroid and retina, and it is hardly fair to pick out the case of a man who has had good vision for three or four years and put down changes in the optic nerve or choroid as having any relations to a past cataract operation.

Dr. G. E. de Schweinitz of Philadelphia—I do not think that was implied. The case was only mentioned as being an interesting observation.

Dr. Frank Allport of Chicago—I wish to add one instance to the case given by Dr. Knapp as occurring in people with mental infirmities. I have had one similar experience, an old man whom I operated on for cataract with apparently good results. After eight or ten days, the nurse having left him for a minute to go to the linen closet, the patient jumped out of bed, threw himself out of the window and was killed. It may be interesting to state the case as showing the amount of care we must give such patients.

Dr. S. D. Risley of Philadelphia—I am very much pleased to see that Dr. Knapp has included the cases suffering from general dyscrasia among the complications of cataract. I am sure this ought to be considered in a large number of cataract cases before giving our prognosis. I have been for many years insisting that cataract is, in a large number of cases, a complication of some general disease. The difficulty is where we shall draw the line with diabetes, gout, rheumatism and syphilis. A large number of old people are gouty or rheumatic, and have changes going on that might produce cataract. I am glad to see attention drawn by so eminent authority to their harmful influence on healing after an operation. Surgical delirium is one of the not infrequent sequelæ. I have had three examples within the past year. I remember that a few years ago one of my colleagues had a patient who jumped out of the window at the hospital a few days after the extraction of cataract, in a fit of surgical delirium.

Dr. G. C. Savage of Nashville—Speaking on the point of insanity none of us would operate on patients who were insane at the time of operation. I have had two cases in which insanity followed the operation and it was clearly due to the use of atropin. Of course this occurs in patients peculiarly susceptible to the drug. I discontinued the use of it and the result was good.

Dr. Harold Gifford of Omaha—The question of how much more we should exercise in keeping these patients from jumping out of windows, etc., is important. I have had one or two cases and it seems to me that where it is possible we should have the patient watched all the time, at least until the first night or two is passed. A device that is not original with me, but which is worth trying, is to tie the hands loosely but so they can not get them up to pull at the bandage. The patient could be instructed as to what to expect, and it gives no discomfort and may prevent injury. The question is how much of this delirium results from the excitement and fear that occurs when these old people awake suddenly and find that they are absolutely blind; particularly if they have had one good eye. In some of these people, while I believe most firmly in closing both eyes ordinarily, I have left their good eye open so that if they should wake up and have a tendency to be scared they can reassure themselves by the use of this eye.

Dr. C. W. Kollock of Charleston, S. C.—One class of patients has not been mentioned. It includes those patients that have false images before the removal of the cataract. I had a patient who saw all sorts of images at night, and the family thought she was losing her mind. After the operation these images disappeared and she was not troubled again until the last few months, when thickening of the capsule began to appear and she is now seeing them again.

Dr. J. A. Lippincott of Pittsburg—Some years ago I introduced a table with such a report to explain the cases where vision is below 20-40. It might be enlarged to include all cases below 20-20. On one side of the table was 20-40, 20-60, etc., down to nothing, and then running along the upper side of the table were the causes for the deficient vision, atrophy, detachment, opacity of the capsule, etc. A table like that can be added, or something of that kind should be appended to one's report so as to give at a glance an explanation of all the cases.

Dr. Herman Knapp of New York—Dr. Hotz was perfectly correct in saying that constitutional troubles ought not to be put into the statistics of complications. It is the ocular complications that are ordinarily reported. In the last 400 cases I wanted to go over the whole subject, however, and mentioned all the factors of the system that could influence my judgment or determine my action as to the operation, after-treatment and results. Complications like diabetes would weigh very little because we now think they do not seriously prevent good results. As to the point made by our president, as to the time statistics should be taken, that is an exceedingly important feature, but it is difficult to ascertain statistics after any length of time. There are between forty and fifty of my cases where only the primary results, when the patient was discharged two or four weeks after the operation are noted. When they turn out badly I get to see them again, but when they remain good there is no cause for them to come; so if we make up our statistics with the results that are attainable that is all we can do. It might be well to state the primary vision and the ultimate vision, for it would complicate our tables very little.

As to cases of deterioration I want to ask whether an operation on the capsule had been done in the case mentioned by Dr. Fox. Dr. Fox—Yes, sir.

Dr. Knapp—I have found that where the capsule is not divided after the operation, at some time or other it is apt to block the vision. I can mention a case that Swanzy had operated on and the patient could read well for years, but gradually her vision was becoming dimmer and dimmer, and was only 10-200 when she came to see me. The whole fault was

nothing but a clouding of the capsule and when I made a division of it she was restored to good sight. That prompted me to make secondary operations in as many cases as I could get hold of. After this capsulotomy there is one objectionable feature that I would like to eliminate, that is the occurrence of glaucoma. It is sometimes acute and comes on within a few days after the operation. Then it is almost always cured. It occurs in about 1 per cent. of all the cases, which is a great deal. In a few cases it is cured by eserin. Glaucoma may occur in such cases any time after the operation. I saw it once in a case of Dr. Agnew after thirty years.

A REPORT OF THIRTY CASES OF CATARACT EXTRACTION WITH REFERENCE TO THE TREATMENT OF PROLAPSE OF IRIS FOLLOWING SIMPLE EXTRACTION.

Presented to the Section on Ophthalmology at the Forty-eighth Annual Meeting of the American Medical Association at Philadelphia, Pa., June 1-4, 1897.

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Undoubtedly the ideal method of cataract extraction is that in which the lens is removed without iridectomy. But in view of the much better results obtainable by the average operator with iridectomy I am inclined to think that simple extraction should be reserved for selected cases. Certainly it is safe to say that young operators should always use the combined method and wait until their judgment and skill are considerable before attempting simple extraction. The adoption of strict asepsis and antisepsis by the modern ophthalmic surgeon has, no doubt, made simple extraction of cataract more popular at the present day; but the great drawback still remains in the liability of prolapse of the iris coming on after the operation. On my return from Europe two years ago I determined to adopt simple extraction. Twenty out of thirty cataract cases were consecutively operated upon without iridectomy, and in four of them prolapse of the iris ensued in one or more days. This was a large percentage, but even the most skillful surgeons, acknowledge 6 to 9 per cent. It is evident then, that the most careful operator must often face the problem of iris prolapse and the important question arises how best to deal with this very likely complication.

Desiring to ascertain the procedures employed by various prominent surgeons in this country and in Europe, I wrote to a number of them. Among the answers were letters from Dr. de Schweinitz and the late Dr. Keyser of this city, Dr. Knapp and Dr. Noyes of New York, Dr. Fuchs of Vienna and Dr. Trosseau and Dr. de Wecker of Paris, some of whom I will quote, and afterward I will describe my own method somewhat in detail.

Dr. Knapp kindly wrote as follows: "For the last several years I have, or rather Dr. R. O'Born as my associate at the New York Ophthalmic and Aural Institute, has been in the habit of inspecting each eye within twenty-four hours after an extraction, be there symptoms of reaction or not. If there is iris prolapse I cut it at once, reduce the edge of the coloboma and obtain, in almost every case, as undisturbed a recovery as if I had made an iridectomy before or during the extraction. Formerly I inspected eyes the first time, three days after extraction if the patient felt comfortable, and abscised prolapse, if at all, rarely before the tenth day. This gave rise to high degrees of astigmatism on the one hand and to an impure artificial pupil on the other. I mean irregular incarceration of the edges of the coloboma. During the last years I have made simple extraction in relatively more cases than ever before. Prolapse of iris has been very rare, and when it occurred the immediate abscission converted the case into one of combined extraction. I make the abscission in manageable patients under cocain and in nervous and unruly patients under ether."

Dr. Noyes is in the habit of doing an iridectomy as early as possible unless the prolapse is very small.

Dr. de Schweinitz usually follows the rules laid down by Dr. Knapp, whom he quotes: "If the prolapse is discovered within a few hours after its occurrence it is cut off and the edges of the iris reduced exactly as after the operation of iridectomy. If the prolapse is not noted until the third or fourth day it is allowed to remain. Small prolapses may disappear, others produce no irritation, while still others become larger, constricted at their bases or cystoid. These are allowed to remain until the irritation has disappeared and then they are amputated in the same manner as a small staphyloma is abscised." "In a few cases in which there has been some gaping of the wound after the amputation I have inserted a delicate silk suture."

The following is a translation of Dr. Fuchs' letter: "If in the days following the extraction prolapse of the iris occurs I not only cut the iris off, but I cut it out; that is, I draw it a little forward, carry it away with the scissors and go then with the Daviel spoon in both corners of the wound in order to place back the coloboma. I consider the thing ended only when both of the sphincter columns stand equally deep and a regular coloboma exists as if an iridectomy had been done. It is true that this does not succeed perfectly in all cases, as for example, when the patient squeezes the eyelids too much and thereby the vitreous threatens to come out. In cases where subsequent excision of the iris has been done I have seen only one case of iridocyclitis. Otherwise the cases have gone along very nicely. I commenced the simple extraction only two years ago and I still operate on more than half the cases with iridectomy. For this reason I have up to this date only 725 simple extractions to show with about 6 per cent. with prolapse. This would therefore give about forty cases of subsequent excision. Those cases where the iris only late (*i. e.*, after the first eight days) and by degrees pressed itself to the wound, and which in these cases is usually very small, I generally leave untouched."

Drs. Oliver and Risley cut off the prolapse if it is discovered within forty-eight hours, otherwise it is allowed to remain.

In my own cases I have always cut off the prolapse as soon as it is discovered, which fortunately has always been within forty-eight hours. I have also been extremely careful to thoroughly cocainize the eye and to use strict asepsis in every detail, and antisepsis as well, where indicated. In removing the prolapse I used no speculum, but had my assistant employ a retractor and, if needed, the fixation forceps, to pull down the globe. This is somewhat unhandy for the operator, but much safer for the eye. I think that prolapse of the iris could often be avoided if greater care were exercised in the expulsion of cortical matter, clear cortical masses being especially dangerous.

The preliminary preparation of cataract extraction consisted of having them under control for about two or three days before operation. The whole body, including the scalp, was bathed in warm water and soap bath, the nasal passages carefully washed out two or three times daily with an antiseptic wash and the conjunctival sac flooded three times a day with a saturated solution of boric acid. A purge was given the day before operation.

Name.	Age.	Diagnosis.	Condition.	Operation.	Visual result.	Remarks.
M. S.	61	Cataracta matura senilis	P. P. good.	Simple extraction, O. D.	20–40	Small loss of vitreous.
J. M.	58	Cat. intumescens senilis.	P. P. good.	Simple extraction, O. D.	20–40	Secondary operation two months.
R. S.	69	Cataracta matura senilis.	P. P. good.	Simple extraction, O. S.	20–30	Nerve off color; secondary operation.
R. A.	74	Cataracta matura senilis.	Per. good, proj. not so good	Simple extraction, O. S.	20–70	
J. C.	77	Cataracta matura senilis.	P. P. excellent	Simple extraction, O. S.	20–30	
C. A.	48	Cataracta matura senilis.	P. P. excellent	Simple extraction, O. S.	20–30	
M. B.	61	Cataracta matura senilis.	P. P. excellent	Simple extraction, O. S.	20–50	Iris prolapse discovered following day; abscission at once; cataracta secundaria.
S. B.	71	Cataracta matura senilis.	P. P. good.	Simple extraction, O. D.	20–20	
K. McK.	51	Cataracta matura senilis.	P. P. good.	Simple extraction, O. D.	20–40	Iris prolapse twenty-four hours; abscission at once.
J. K.	62	Cataracta matura senilis.	P. P. good.	Simple extraction, O. D.	20–40	
M. G.	80	Cat. matura complicata.	Percep. good, projec. fair.	Simple extraction, O. S.	20–50	Secondary operation; gross choroidal changes.
M. B.	64	Cataracta matura senilis.	P. P. good.	Simple extraction, O. D.	20–50	Cat. secundaria; secondary operation two months.
W. C.	65	Cataracta matura senilis.	P. P. good.	Simple extraction, O. S.	20–30	
A. McB.	59	Cataracta matura senilis.	P. P. excellent	Simple extraction, O. S.	20–30	Secondary operation in one year.
B. McD.	49	Cat. intumescens senilis.	Counts fingers badly.	Simple extraction, O. D.	20–40	Cataracta secundaria; Secondary operation; O. S. cornea-macula, V.=4-200.
L. D.	58	Cataracta matura senilis.	P. P. excellent	Simple extraction, O. S.	20–ee	Iris prolapse discovered in forty-eight hours; abscission at once; secondary operation to be done.
F. S.	72	Cataracta matura senilis.	P. P. excellent	Simple extraction, O. S.	20–40	
W. K.	68	Cataracta matura senilis.	P. P. excellent	Simple extraction, O. D.	20–30	Secondary operation five months.
C. K.	76	Cataracta matura senilis.	P. P. good.	Simple extraction, O. S.	20–40	
H. E.	59	Cataracta matura senilis.	P. P. good.	Simple extraction, O. S.	20–50	Iris prolapse twenty-four hours; abscission at once.
D. S.	64	Cataracta matura senilis.	P. P. good.	Combined extraction, O. D.	20–30	
F. A.	68	Cataracta matura senilis.	P. P. excellent	Combined extraction, O. S.	20–30	Secondary operation six months.
G. W.	48	Cataracta matura senilis.	P. P. excellent	Combined extraction, O. S.	20–20	
C. M.	83	Cataracta matura senilis.	P. P. very doubtful.	Simple extraction, O. 2..	Doubtful 0.	Both eyes operated upon; patient very unruly; refused to open lids for several weeks after operation; secondary operation to be performed.
J. D.	68	Cataracta matura senilis.	P. P. good.	Combined extraction, O. D.	V. 20–30	
T. K.	72	Cataracta matura senilis.	P. P. good.	Combined extraction, O. D.	V. 10–40	Cataracta secundaria.
W. S.	59	Cataracta matura senilis.	P. P. good.	Combined extraction, O. D.	V. 20–40	
M. McC.	64	Cataracta matura senilis.	P. P. good.	Combined extraction, O. D.	V. 20–30	
W. B.	56	Cataracta matura senilis.	P. P. good.	Simple extraction, O. D.	V. 20–40	Detachment retina O. S.; no indication of same O. D.
E. S.	71	Cataracta matura senilis.	P. P. good.	Combined extraction, O. D.	V. 20–40	

All instruments except the Graefe knife were sterilized in soda solution. The Graefe knife was dipped in a boiling soda solution and, along with the other instruments, put in absolute alcohol and all carefully wiped with sterilized gauze. The solutions of cocain and boric acid were rendered sterile as far as practicable. Cocain (2 per cent.) was always instilled into the eye about twenty minutes before operating (and repeated), as this seemed to produce anesthesia of the iris, preventing the patient from squeezing the lids during the delivery of lens or during iridectomy. At the time of the operation the patient's face was thoroughly washed with warm water and soap, followed by bichlorid, 1 to 2,000. The eye was washed out with a 1 to 5,000 solution, and just before the incision a 1 to 2,000 solution was dropped over the globe, which I believe is the custom of Dr. Knapp. My hands and those of the assistants were carefully looked to. Lately I have used sterilized gloves as employed by Landolt. These are put on immediately after washing the hands in the bichlorid solution and are not removed until the time of the operation.

A very light aseptic gauze bandage with pads (dry) was used in every case. The eye was washed daily with boric acid solution and atropin was instilled. In some cases the bandages were removed in five or six days, and in others not until the fourteenth or fifteenth day. No case was confined to bed more than seven days, four days being about the average.

I am indebted to my assistant, Dr. Martin, and also to the resident physicians of St. Mary's Hospital for the very thorough manner in which they carried out antiseptic detail, as in none of the cases was there the slightest evidence of suppuration.

GLAUCOMA.

Presented to the Section on Ophthalmology, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1-4, 1897.

BY DUDLEY S. REYNOLDS, A.M., M.D.

Professor of Ophthalmology, Otology and Medical Jurisprudence, in the Hospital College of Medicine, Medical Department of the Central University of Kentucky; Surgeon to the Eye and Ear Department of the Louisville City Hospital, and the Gray Street Infirmary, etc.

LOUISVILLE, KY.

The term glaucoma, which formerly meant sea-green pupillary reflex; with more or less complete blindness, described by Walther as a condition in which the patient sees nothing and the surgeon likewise nothing, has come to mean so much that it now really means nothing definite. The nearest approach I could come to a location of the structural lesions which give rise to the symptoms of glaucoma would be the ciliary region of the eye. As a matter of fact, disturbances in the nutrition of the ciliary muscle, with or without corresponding disturbances in the ciliary body, presenting all the varying characteristics from a reflex hyperemia to a fulminating parenchymatous inflammation, give rise to some degree of ocular tension, accompanied by undue fulness of the retinal veins and some degree of depression of the surface of the optic disc. Perimetric registration may be required to complete the diagnosis in some mild cases. In acute inflammatory cases this means of diagnosis, if desired, could not be practiced.

The degree of ache varies from the slightest sense of continued discomfort to a sense of excruciating pain. Clinically considered, the inflammatory attacks of cyclitis which present sharply defined ocular tension, with turbidity of the refracting media, sluggish or entirely absent pupillary movement, with well-defined corneoscleral injection, may safely be accounted manifestations of rheumatism or gout; except-

ing alone those eyes which have been subjected to some recent injury. If iridectomy be done in such cases, it must be supplemented by active antirheumatic medication. I believe it unwise to perform iridectomy during a paroxysm of inflammatory glaucoma. With full dose of Rochelle salts followed, as soon as the bowels have moved, by ten, fifteen or twenty grains of salicylate of sodium in a half pint of water every hour until the pain is subdued; then every four hours alternately with suitable doses of the muriate of pilocarpin in a like quantity of water; accompanying each dose of medicine with four to six ounces of nutrient fluid, such as malted milk, beef tea or other similar fluid, permitting no other nourishment to the patient until all inflammatory symptoms have been subdued (and it may be safely calculated this may be accomplished within two or three days), it will be found that the inflammatory process may be favorably modified, even in the worst cases, within two or three hours from the administration of the aperient. If, when the force of the inflammation has been checked and the humors of the eye cleared up so as to permit satisfactory ophthalmoscopic examination, it then be found that the disc is cupped, the retinal veins enlarged and tortuous, the field of vision characteristically contracted, no matter whether ocular tension is discoverable at this period or not, iridectomy should be done.

In all cases where iridectomy seems to be urgently needed, it must not be forgotten that general anesthesia will be required, and that this nearly always provokes emesis and severe headache; in fact, engorgement of the vessels of the superior extremity of the body, conditions which favor rupture of already turgid vessels. I am convinced many eyes are sacrificed in the hasty performance of iridectomy, before efficient means have been employed to reduce arterial tension. The pain of all inflammatory processes is promptly abated in direct proportion to the reduction of blood pressure. The dangers incident to iridectomy, when blood pressure is high, far outweigh any possible disaster from delay pending the preparatory treatment of the patient. I am persuaded the customary one-fifth, or one-sixth part of the iris is entirely too large a section to remove. I have been frequently amused in reading some of the chimeric explanations of the supposed changes which take place in the eye after iridectomy has been done.

We have all seen in various injuries of the eye, how inflammatory products and traumatic hemorrhages in the anterior chamber likewise disappear. It is no uncommon observation that the glaucomatous eye which has been subjected to iridectomy suffers, with each recurring relapse, more or less hemorrhage into the aqueous chambers. There is every reason to support the theory that drainage through the vessels of the iris into the aqueous chambers constitutes the sole advantage to be derived from iridectomy in the treatment of glaucoma; and there is, to my mind, no tangible basis for the theory that iridectomy is, of itself, a permanent curative agency. I regard it as an absolutely necessary auxiliary measure, in all the varying types of the so-called inflammatory glaucoma. I believe that in the incipient types iridectomy can do no good. I believe it is useless in any case where the iris is not involved. My experience with sclerotomy, both anterior and posterior, has been such as to leave me in doubt as to the value of either form of the operation. I have long regarded Hancock's operation as an unjustifiable procedure, subjecting the eye, in many cases, to ultimate loss of sight. It is nearly always followed by recurring attacks of cyclitis, which by continuity invade the choroid, eventually extinguishing sight, sometimes requiring enucleation to arrest the frequently recurring reflex disturbances in the fellow eye.

In eyes which have been subjected to extraction of the lens without iridectomy, iritis coming on insidiously, the pupil undergoing contraction and becoming cemented to the posterior capsule of the lens, gradual increase of tension is developed, and even in some rheumatic subjects entire recovery may be secured without iridectomy. In such cases I have occasionally practiced divulsion of the sphincter pupillæ muscle, by passing two needles through opposite sides of the cornea into the minute pupillary area, and by separating the needles, first laterally and then vertically, forcibly tear open the posterior capsule, at the same time divulsing the pupil; following this process by the administration of salicylate of sodium and pilocarpin, in alternate doses, and using locally a drop of homatropin solution every half hour for the first day, always restricting the diet to fluids administered with the medicine, as before suggested, during the period of active inflammatory changes.

An illustrative case may be cited from my practice:

A robust woman 80 years of age, with rheumatic diathesis. I extracted senile cataract from the left eye on April 12, 1897. No incident of importance occurred until May 12, when I received a letter from Dr. N. informing me that Mrs. K. was suffering with neuralgia of the left eye. I wrote to him to use no opiate, but to rely on the salicylate of sodium and the homatropin drops for the relief of the pain. She made but slight improvement and returned to the city on May 21. At that time the ocular conjunctiva was injected so much as to render the sclera invisible. The pupil was about 2 millimeters in diameter, and seemed to be about 5 millimeters posterior to the cornea, giving the iris the appearance of a funnel. Tension +2. On May 22, at the Gray Street Infirmary, I practiced divulsion of the sphincter pupillæ, as above described. The anterior chamber promptly filled with blood and as soon as the operation was completed the patient began with 10 grains of salicylate of sodium in a half pint of water, followed two hours later by one-sixteenth of a grain of muriate of pilocarpin in a like quantity of water; in two hours more, another dose of the salicylate, and so on alternately. At the same time a solution of homatropin, 1 grain to 2 drams of distilled water, was instilled every half hour. On May 23, at 8 A.M., the patient's temperature was 99.3 degrees; at the time of the operation it was 99.8 degrees. The pain, which was considerable at the time of operating, has disappeared entirely, and the patient had a fairly good night's rest, awaking occasionally. At 4 P.M. the temperature was 98.2 degrees, tension of the eye about normal, patient entirely comfortable, in a profuse perspiration; anterior chamber beginning to clear up; iris distinctly visible. May 27, 8 A.M., anterior chamber clear; no tension; pupil distinct and round, 5 millimeters in diameter. Patient had a good night's rest. At 6:30 P.M., temperature was 98.2; aqueous chamber of the eye perfectly clear; vessels of the ocular conjunctiva clearing up, with the sclera distinctly visible on the temporal side of the globe. The lids, which had been slightly swollen since the operation, are now entirely normal in appearance. The patient counts fingers at three feet, and says she wants to go home. May 28, at 4 P.M., the sclera shows distinctly; the eye is perfectly comfortable and the patient is anxious to return home. She has no abnormal temperature and desires a more liberal diet. The pilocarpin is discontinued and the salicylate is to be kept up every four hours. Patient may have a little solid food, the fluid nourishment to be continued with each dose of medicine. The homatropin drops are to be continued every four hours. I regard the patient as safely convalescent and anticipate no further trouble. [August 25, 1897 with +11.00 D.; S. = 6-xii+ Snellen.]

I have had many similar experiences, and submit this as my most recent, as affording, perhaps, the most distinctly typical illustration of my point, that con-

stitutional treatment is vastly more important than either iridectomy, or any possible advantage from local medication.

In an eye from which the lens has not been removed, conditions similar to those described in the case of Mrs. K. could not, in my judgment, be overcome without iridectomy. In an aphakial eye abundant experience shows that iridectomy can accomplish no good purpose and is wholly unnecessary, even in the presence of an acute inflammatory glaucoma.

To briefly sum up the points I desire to make, it will be necessary to keep in mind the clinical features. My conclusions briefly stated are as follows:

1. Incipient glaucoma is frequently relieved by improved nutrition, with correction of any existing errors of refraction. It is sometimes relieved by the iodid of potassium, associated with the local use of eserin drops.

2. Mild and insidious cases of inflammatory glaucoma, between paroxysms, may exhibit but little tension. They require iridectomy for the drainage of the engorged vessels during the paroxysm, and constitutional treatment to aid in the elimination of accumulated débris in the tissues.

3. Inflammatory glaucoma, excluding the traumatic cases, should be accepted as a manifestation of rheumatic diathesis; and, while iridectomy should constitute a necessary part of the treatment, it should not be relied upon to the exclusion of the all-important constitutional measures. I do not think iridectomy should ever be done as a prophylactic measure simply.

4. Since iridectomy can accomplish nothing beyond the establishment of drainage for the vessels of the iris and contiguous structures, into the aqueous chamber, the amount of iris removed should be small. The operation should not be repeated in any case. Supplemental constitutional treatment is imperatively demanded in every case where iridectomy is done.

5. In all cases of increased tension of the eye, with peripheral contraction of the field, engorgement of the retinal veins, with or without visible cupping of the disc, constitutional treatment is necessary; and, above all, strict attention to the state of general nutrition and habits of the patient.

SECONDARY GLAUCOMA.

Presented in the Section on Ophthalmology at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, June 1-4, 1897.

BY S. D. RISLEY, M.D.

Professor of Diseases of the Eye, Philadelphia Polyclinic and College for Graduates in Medicine; Attending Surgeon Wills' Eye Hospital.

PHILADELPHIA, PA.

It is probable that under the title of this paper might be quite correctly classified all classes of inflammatory glaucoma whether acute or chronic. There would then remain a comparatively small, illy defined group of cases of a non-inflammatory type to be designated as simple or primary. Increasing clinical experience has surely taught that the increased tension of the eyeball, the insensitive and steamy cornea, the impairment of peripheral and central vision is a group of symptoms frequently occurring as a resultant of widely diverse pathologic processes. For example, we find this important and interesting symptom-group as a sequel to hemorrhagic retinitis, or to chronic but steadily advancing disease of the uvea in gouty subjects. We meet it again in cases of dislocated lens, or following large rents in the lens capsule caused either by discission operations or by accidental traumatisms, which cause a rapid swelling of its substance and speedily loading of the aqueous with the dissolved cortex: It not infrequently presents itself as a part of the closing scene in the destructive processes which characterize plastic iridocyclitis, fiercely attacking, as they do, the anterior segment of the globe, or in uveitis, which involves usually the entire uveal tract. In all of these widely differing conditions the glaucoma group of symptoms occurs as a sequel, probably never as a primary or initial condition.

I do not propose to discuss these suggestions in all their bearings, but simply to give briefly the history of two cases which illustrate widely diverse types of disease, each leading up finally to the symptom-group we call glaucoma.

Case 1.—Plastic iridocyclitis, annular synechia, and occlusion of pupils. Secondary glaucoma, iridectomy; recovery with moderate vision.

W. W., colored man, aged 32 years, came to the Wills' Eye Hospital, June, 1894. He had suffered from an attack of iritis, probably syphilitic, in 1884, since which time he suffered frequent attacks of pain and redness of the eyes, for which he had received no treatment. His vision had gradually failed until he found it difficult to do his work, that of a farmer. During these years he had suffered from frequent attacks of headache, which had lately become constant, and his vision was often so poor that he could with difficulty find his way about in strange places. O. D. V. large letters at 1 m., but was often much worse. O. S. V. q. p. l.

The following conditions were noted: O. D. pupil small; annular synechia; anterior capsule gray; anterior chamber shallow and angle closed by adherent iris. Tension 1. Slight ciliary injection; no study of fundus possible; contracted field of vision. O. S., same general conditions present, but pupil was in addition occluded by a mass of exudate. The iris was pressed forward and was lying apparently in contact with the cornea, the pupil lying in the apex of a funnel-like depression. The ball was soft. He was placed on mercurial inunctions and eserin; potas. iod. in ascending doses internally. This treatment was maintained until the latter part of September. During this time, although his health improved, he suffered severely from headache and had repeated attacks of increased tension in both eyes. His vision grew rapidly worse, so that he was led to the clinic by his wife, and the candle fields were contracted to a few degrees. He was then admitted to the hospital and a broad iridectomy made upward in both eyes. It was impossible to carry the point of the keratome between the cornea and iris. It was therefore entered well back and penetrated the posterior chamber, being brought forward through the iris into the anterior chamber near the pupillary border, care being exercised to avoid the lens. A quantity of viscid yellowish fluid exuded from the wound. The iris forceps were introduced and seizing the iris at the cut portion near the pupil was gently drawn out of the wound in the reverse order from that ordinarily employed. It was found sufficiently tough to bear traction in the right eye, but very friable in the left, so that it was taken away in fragments, but a large coloboma was secured in each, which fortunately remained open. The eyes healed promptly but continued red and irritable for many weeks. The anterior chambers resumed their normal depth and both balls became soft. The headache promptly disappeared and he was soon able to see his way about the ward.

After six weeks he was discharged from the hospital with sufficient vision to be able to go home without a guide, and became an out-patient. Potas. iod. and bichlorid of mercury alternating with iod. of iron were continued with more or less regularity for a year or more, with local washes, atropin and weak solution of eserin. He has never had any recurrence of headache, or pain or redness of his eyes, and the tension of the balls has steadily improved. He attends the clinic without a guide and is able to resume his work about the farm.

Case 2.—Uveitis, secondary glaucoma.

Sept. 9, 1894, R. W. presented himself at the Wills' Eye

Hospital for treatment. He was suffering from dull headache and photophobia. He related that the left eye became red and painful during the summer of 1894, and had been under the care of his physician for a long time before he observed failing vision in the right. He denied syphilitic infection at any time, but was evidently in ill health and of a so-called strumous diathesis.

The pupils were dilated with atropin prescribed by his physician. The following objective conditions were noted: In O. D. there was some ciliary injection, the epithelial surface of the cornea was normal, but the posterior surface was dotted with numerous gray points which were arranged in a more or less triangular form in the lower part of the membrane of Descemet. The anterior chamber had normal depth, but the aqueous humor was slightly turbid. Viewed through this and the deposit on the cornea, the iris seemed to lack luster and its surface presented an apparently smooth uniform surface. The pupil was dilated; large medium and no synechia were present. Only a veiled view of the fundus could be obtained. There were floating vitreous webs, and the nerve borders were lost in the surrounding infiltration of the fundus. T. = n. V. = 6/xii. Field for form normal.

In O. S. there was more pronounced ciliary injection. The cornea was found steamy throughout and at its lower part a large crescentic area extending from the limbus to a point near the horizontal meridian of the cornea, exhibiting deep gray infiltration over which the cornea appeared flattened, but the epithelium was intact.

The anterior chamber had apparently normal depth. The pupil was small, its margins partially adherent to the anterior capsule was gray. V. = 6/xxx, slight minus tension. No satisfactory study of the eye ground could be made.

He received potas. iod. and corros. sub., with tonics, internally and atropia locally. By November 11 the eyes had lost their injection and dread of light and his headache was better, but vision in O. D. had fallen to 6/xv and small slender synechia had formed, and the vitreous degeneration had also advanced. In O. S. V. 6/xlviii; tension and fields were normal in each eye. The atropia was stopped. On November 23 the corneæ were steamy and vision had fallen to 6/ix in each, and severe pain in the eyes came on daily, after noon, for which he received eserin locally and antiperiodic doses of quinin. There were transient attacks of increase of tension, but these would disappear after massage and instillation of eserin, even while waiting in the clinic room. The eserin alone however was not well borne, the eye often doing better under atropin, or the two drugs used alternately. He would have intervals often extending over many days of freedom from pain, during which the haze of the cornea would be absent and the vision would improve; then suddenly, and without known provocation, the symptoms would return with marked increase of tension, which could always be speedily relieved by manipulation and eserin. The case progressed until Feb. 11, 1895, when under an unusually severe exacerbation of acute glaucoma, vision fell to the ability to count fingers with difficulty, corneæ steamy and insensitive, T. + 1. Severe pain, anterior chambers normal depth.

He was admitted to the Hospital, placed on mercurial inunction, eserin and light massage. Under this treatment, with extra diet and tonics, the glaucoma rapidly disappeared and vision once more came up, but there was marked cut in the lower temporal fields of both eyes.

On March 6 the eyes were nearly white again, and although there were transient attacks of increased tension, the eyes were free from pain. On March 12, 1895, the fields were found as shown in Fig, 2, *a* and *b*. O. D. V. = fingers only. O. S. V. = 5/lx. A broad iridectomy was then made in the right eye. The recovery was rapid and without reaction, and in four weeks V. = 4/lx. On April 1 an iridectomy was made on the left eye, which also recovered without reaction, and the man was discharged from the hospital on April 15, 1895, with both eyes white, the fields of vision nearly normal. T. — 1. O. D. V. = 4/lx. O. S. V. = 4/lx. No satisfactory study of fundus possible, cornea clear, except lower quadrant in the left eye. There was no return at any time of increased tension, but there were repeated attacks of bullous keratitis in both eyes, during the following summer and autumn. The eyes, however, finally became quiet, A year later, March, 1896, V. had fallen to 1-60 in O. D. from commencing opacity of the lens. O. S. had risen to 6/xlviii. In April the right ball was soft, lens opaque, q. p. l. shallow anterior chamber. O. S. V. 6/xlviii and white T. — 1. in each eye.

The history of these patients is presented as illustrative of two essentially different groups of patients, both unfortunately very common, but, in the opinion of the writer, of great interest because they shed much light upon the etiology of increased tension. In both cases was witnessed the steady progress of disease culminating in all the signs of inflammatory glaucoma. Increased tension, steamy and sensitive corneæ, and contracted field of vision, all the symptoms being promptly relieved by iridectomy. Nevertheless they present few if any other features in common. In Case 1 was present all the conditions of a plastic iridocyclitis, viz., an acute iritis followed by frequent recurrence of milder or subacute exacerbations, leading to annular synechia, occlusion of the pupils, infiltration of the iris and ciliary body, with the products of inflammation, copious exudate imprisoned behind the iris, which was pressed forward by its accumulation, effectually blocking the spaces of Fontana and thus closing the excretory channels at the angle of the anterior chamber.

In case 2 we have presented a history which differs from case 1 in all essential particulars. The marked tendency to a plastic exudate is absent. Only a thread-like synechia was formed. The onset of the disease was insidious and steadily progressive, attacking first the left eye and after many weeks spreading to the right, where the first manifestation was that of dimness of vision, which proved to be due to an infiltration of the retina and choroid at the posterior pole which blurred the optic nerve margins and veiled the details of the fundus; then degeneration of the vitreous body, shown first by a sand-like deposit and later by webs which as the disease advanced became more dense and floated more and more freely, while the acuity of vision rapidly declined. Then came deposits on the posterior surface of the cornea from the aqueous, which became turbid from the increasing exudate. Not until this stage of the disease was reached was there observed any tendency to increase of tension. At no stage of the affection was the anterior chamber shallow, or the angle closed by the periphery of the iris; at no time was there any arrest of communication between the posterior chamber and the spaces of Fontana. Nevertheless as in case 1, we observed, late in the disease, the increased tension, the steamy and insensitive corneæ, the contracted fields of vision, also relieved by iridectomy never to return.

It is obvious that from the start to finish we have two essentially different types of disease portrayed in the history of these two patients, both, nevertheless, culminating in a common group of symptoms depending upon a mechanical condition which required for its relief the same mechanical interference. Many important and interesting inquiries present themselves for discussion, especially in case 2. First, in both interest and importance, is the nature of the disease in the right eye. Was it idiopathic, or was it secondary to that in the left eye which was first involved, and probably due primarily to an abscess in the lower part of the cornea?

In the second eye the disease certainly manifested itself first in and around the papilla and subsequently spread forward gradually manifesting all the conditions ordinarily present in so-called sympathetic ophthalmia of the serous type.

In case 1 the increase of tension was obviously due to the exudates and fluids imprisoned behind the iris and by the closure of the angle of the anterior chamber. In case 2, it is probable that the anterior excretory channels were clogged by the profuse albumin-

ous exudate. This view seems to find corroboration in the relief which was frequently afforded by massage.

DISCUSSION ON PAPERS OF DRS. REYNOLDS AND RISLEY.

Dr. ALLPORT of Chicago—In discussing the paper of my friend, Dr. Reynolds, and while agreeing with him in the general trend of thought contained within its pages, I can not but feel that his loyal, broad and radical nature has been led into certain positive statements that are hardly warranted by the condition of modern ophthalmologic thought. For instance, he utterly surrenders to the rheumatic or gouty theory of glaucoma. I would not be understood as ignoring this important and suspicious etiologic factor, as we are doubtless all firm believers in its potency, but I am not prepared to accept the sweeping assertion that the production of glaucoma is dependent upon two factors, viz., lithemia and traumatism. Time and research may, it is true, verify this bold position, but I am at present unacquainted with scientific data upon which to build such an etiologic structure. The lithemic theory of pathology is now ascendant, not only in ophthalmology, but in other branches of medical science, and like other theories, is in danger of too great popularity; and while not desiring to decry its claims, I would like to be confident that ophthalmology may not be compelled to retrace its steps.

Dr. Reynolds' theory of the cause of benefit derived from iridectomy is unique. He evidently believes that glaucoma is purely a vascular disease and has nothing to do with abnormal secretion or excretion. He may be correct in his views; it is unbecoming in any one to disregard the opinions of others, but surely this is not the pathology entertained by modern ophthalmologists.

Dr. Reynolds attributes the benefit derived from iridectomy to the mere production of a cut iritic surface which permits of vascular drainage through the iritic blood vessels. If this were true, a simple incised wound of the iris would answer the purpose as well; and how can we account for undoubted (*if* infrequent) beneficial results following the operation of sclerotomy? I had supposed that the usefulness of a broad iridectomy in these cases resided chiefly in the tearing away of the obstructive, adherent iritic periphery from the posterior corneal circumference, thus re-establishing the lymphatic circulation coming *from* the ciliary body, zonula, posterior and anterior chambers and going *to* the canal of Schlemm, spaces of Fontana, and onward. If this is true (and it appears to be the present accepted theory), then Dr. Reynolds' idea of a small iridectomy would be at decided variance with it. We all feel that a large broad iridectomy is the proper operation, as the broader the detached base, the more thoroughly will those obstructions be removed which militate against the maintenance of ocular, excretory equilibrium.

Dr. Reynolds says that iridectomy is of itself never a permanent curative agent. He may be right in this view, but I am sure we can all of us point to cases where a timely iridectomy has proven curative, at least for many years. Such results must surely have occurred, many years ago, before the deadly lithemic diathesis was discovered, or iridectomy would not have become so popular with Graefe and his followers.

Dr. Reynolds certainly holds optimistic views concerning the constitutional treatment of glaucoma, and I must congratulate him on the excellent and exceedingly prompt results obtained in his cases, which I can quite readily comprehend, not only because they are vouched for by my friend Reynolds, but because I have seen similar cases in my own practice. I feel, however, that we should be careful not to pronounce cases of glaucomatous tendencies as true glaucoma, and thereby perhaps establish lines of erroneous therapeusis. Still, I have not the slightest doubt that the sensible treatment advocated by Dr. Reynolds is often of the greatest benefit in *functional* glaucoma, before organic changes have occurred, and I believe that in almost all cases such or similar treatment should be thoroughly tried before subjecting the patient to the knife.

Dr. F. C. HOTZ of Chicago—Dr. Risley's report is an excellent illustration of the futility of the attempts to discover the complex, pathologic symptoms leading up to glaucoma. If we still consider increase of tension as the fundamental symptom, we must necessarily conclude that this may be caused by increased secretion into the eye or diminished excretion from it. We all know that one of the theories is based upon a mechanical obstruction in the iris angle. Among the cases Dr. Risley reported, one illustrates a mechanical impediment interrupting the removal of the fluid from the spaces of Fontana by blocking up the pupil. As to the other theory, which puts the obstruction in the iris angle, I have never been able to make up my mind to accept it and I think all the observations made and reported of old glaucomatous eyes are very deficient in their conclusive evidence, because in all the eyes examined changes had occurred which had nothing to do with the primary condition leading to the increase of tension, and if we especially consider those cases of so-called secondary glaucoma we are more and more led to look upon the ciliary processes producing the increased secretion as the seat of pathologic change leaning to increased tension.

Glaucoma, or increased tension, following needle operations as mentioned by Knapp, and increased tension following traumatisms in the anterior part of the eye, show more or less symptoms of irritation in the ciliary region and in this connection I consider the researches of Treacher Collins of great importance. He thinks that the ciliary processes are glandular structures and if these observations are confirmed, we have a very important discovery, because these glands might easily answer for the increased secretion of serum into the eyeball as the result of an irritative condition.

Dr. LUCIEN HOWE of Buffalo—I was very much struck by what a gentleman said to me several years ago, that at regular intervals, two or three times a year, he received articles on glaucoma and he usually noticed that the less the author had of experience, the longer the articles were. I do not mean that the papers we have listened to have not given us a flood of light upon some of the points, but we are too apt to be led into this or that theory that has not a sufficient number of facts upon which to stand. I want to mention two things bearing upon these papers. My attention was called some time ago to the extract of the suprarenal capsule for lessening that kind of injection. It is of decided value. The preparation lasts a very short time unless it be made into tablets, which can be easily prepared. Another point I wish to call attention to is the use of eucain as a local anesthetic, especially where atropin causes the iris to almost disappear. It produces anesthesia and does not produce dilation of the pupil.

Dr. C. A. WOOD of Chicago—There is one aspect of secondary glaucoma which it would be well to bear in mind, and that is its tendency to assume forms which it is extremely difficult to differentiate from secondary optic nerve atrophy, associated with physiologic cupping of the papillæ. A unilateral cupping, sufficiently deep and large to hide the papillary portions of the retinal vessels, is practically always significant of glaucoma whether the other signs or symptoms of the disease be present or not, but in the bilateral cases, unless there are unequivocal evidences of glaucoma apart from these ophthalmoscopic appearances (continued increased tension, pulsating arteries, shallow anterior chamber, enlarged anterior perforating view, etc.), it is extremely difficult to make a diagnosis. Schweigger pointed this out many years ago and furnished numerous instances where cases of simple progressive atrophy, accompanied by occasional doubtful increased tension, had been operated upon with disastrous results. I have seen a number of these cases of so-called "simple" glaucoma and have reason to suspect that the lack of faith expressed by many writers in the treatment (eserin, sclerotomy, iridectomy, etc.) of simple chronic glaucoma, arises, in some instances, from the fact that these cases partake much more of the character of simple progressive atrophy associated with congenital cupping of the disks, whatever that may mean, than of the symptom-group described by Dr. Risley as glaucoma.

Dr. S. S. SEABETTER of Birmingham—I would like to refer to the statement made a few minutes ago in regard to the frequency of the disease among the colored people, and the attempt to assign a cause for it. I live in a State where two-fifths of the population is colored and I can recall but one or two cases of glaucoma among colored people, while I think of quite a number of cases among the whites, and I hardly think the condition supposed exists.

Dr. C. F. CLARK of Columbus, Ohio—There is only one point I would like to hear more discussion upon and that is the extent of the iridectomy. It is an old question, but not entirely settled. I have seen a number of cases of good results from very small iridectomy.

Dr. LEARTUS CONNOR of Detroit—There are some facts bearing on the points raised by Dr. Reynolds that are worthy of consideration. I think it is proven that the conditions that Dr. Reynolds alluded to do make changes generally in the interstitial tissue and in this way interfere with the spaces between the anterior and posterior chambers, and knowing how this is done the remedy for it is easy. The reason I think that iridectomy may do this is that it opens up these spaces; I do not think it is the taking away of the iris at all, but that by removing it the obstruction in these spaces is removed and the fluid can pass through readily. As Dr. Risley mentioned, mas-

sage has produced these results. I have seen it myself, and some one has said that electric currents will do the same thing. I think it is desirable to try this also. From my own experience I think we have gone somewhat beyond theory and have some pretty positive evidence upon which to base a rational line of treatment, and in a general way Dr. Reynolds has fairly well stated the methods.

Dr. A. B. RANDALL of Philadelphia—A seeming paradox sometimes produces good results. In Risley's case we had a decided amount of reduced tension in the eye operated upon in contrast to the more usual condition between the exacerbations. We should bear in mind the evidence we have to suppose malnutrition to constitute a factor of very great importance, not always secondary, but often provocative. I recall very well a case that in some ways I might call a glaucoma with decreased tension, a case with both eyeballs soft and one absolutely mushy. I made use of iridectomy for the improvement of nutrition and was gratified with a fairly good result which in view of the fact that the other eye went on to a bad result, enables that man to make his living and even to read slightly with an eye that my colleagues strongly urged nothing could be done for it but enucleation. These paradoxes then might properly engage our attention and we may find some underlying interstitial changes that must always be taken into account.

Dr. G. EDGAR DEAN of Scranton, Pa.—I have read the paper that Dr. Connor refers to and since reading it I have made use of electricity in some of the cases in which iridectomy was not called for, and I have positively seen a very decided reduction of tension in the short time of ten minutes after the application of electricity by applying the negative pole to the eye and the positive pole to the head. I would call attention to the fact that the negative pole must be placed to the eye because I have seen cases in which there was increased tension produced by placing the positive pole on the eye; the direction of the current is important. The points which Dr. Reynolds brings out in regard to the internal treatment, such as the use of laxatives, Hunyadi water, etc., is also important, and I believe the use of salicylate of sodium and pilocarpin are very important points and should not be neglected.

Dr. HERMAN KNAPP of New York—In regard to the theory of glaucoma, that the ciliary body is probably at the bottom of it, is shown not only by cases of increased tension, but in sympathetic ophthalmia as well, but the glaucoma after discission is true experimental glaucoma and the bodies interfered with are the vitreous and ciliary bodies. The lens capsule has nothing to do with it and in those cases the angle is not only left but is increased; the iris is bulging in the center and retracted at the periphery, so there is no blocking of the spaces of Fontana. These two things should be considered.

Dr. D. S. REYNOLDS of Louisville—The point that I endeavored to emphasize was the fact that in the inflammatory forms of glaucoma the disease most likely begins in the ciliary muscle. We all know the predilection of the peculiar complex form of disease we call rheumatism for the connective tissues and the ligaments. Another point I wish to emphasize is that those of non-inflammatory development occurring in neurotic people are due in a large majority of cases to malnutrition. The other causes I could not consider in the short time at my disposal.

Dr. S. D. RISLEY of Philadelphia—There is probaby a distinct relation between the deep anterior chamber in glaucoma following discission operations, as pointed out by Dr. Knapp, and the presence of vitreous which clogs the spaces of Fontana.

ANGIOMA-MYXO-SARCOMA OF THE ORBIT, WITH REPORT OF A CASE.

Presented in the Section on Ophthalmology, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1-4, 1897.

BY S. C. AYRES, M.D.
CINCINNATI, OHIO.

There is no locality of its size in the human body so rich in the various tissues which may serve as the starting point for the development of tumors, both malignant and benign, of the orbit. In it we have bone, periosteum, muscular tissue, fat, fibrous and connective tissue, glands and mucous membrane, and in the capsule of Tenon a serous cavity lined with a serous membrane. There is also the optic nerve and a liberal supply of blood vessels. Among the malignant tumors we find carcinoma, sarcoma, myo-sarcoma, and from the internal ocular tunics, melano-sarcoma and glioma. Among the benign tumors we find angioma, erectile tumors, fibroma, myxoma, lipoma, hydatids, serous and bloody cysts, dermoids, osteomata, papillomata, cysticerci and occasionally enchondroma. There are also tumors of the lachrymal gland and optic nerve, and aneurysms of the ophthalmic artery, both traumatic and idiopathic. The orbit is occasionally involved by disease of the ethmoid, the frontal sinus and the brain. The cavity is also of special interest to the general surgeon in concussions of the brain, fractures of the bone of the skull including the sphenoid or other bones which form the orbit and in cases where intra-orbital hemorrhages occur. Taken all in all it is a cavity well worth the careful study of the oculist as well as the general surgeon. This is my apology for presenting a rather rare form of orbital tumor.

Mrs. M., aged 64 years, was first examined by me in February, 1896. She stated that the tumor in the right orbit was first noticed eighteen years ago. It began in the upper and outer angle in the region of the lachrymal gland. Its development was very slow and painless and it was several years before vision in the eye began to fail. It has been in its present condition three or four years but is becoming more annoying on account of the enormous proptosis of the globe. The tumor fills the upper and outer portion of the orbit pushing the eye down. The proptosis is very marked, the eye being so far out of the orbit that the posterior portion of the globe is almost on a line with the bridge of the nose. The motility of the ocular muscles is unimpaired except by the great stretching of the muscles. The media are clear with the exception of the lens, in the lower portion of which is a small opacity. The optic nerve is atrophied and there is a large posterior staphyloma. The eye still retains slight perception of light. Under the skin of the outer angle of the upper lid can be felt a movable gland

which is probably the lachrymal gland completely extruded. On forcibly drawing up the upper lid the outline of the tumor can be seen. It is smooth, rounded, not nodulated, is somewhat elastic but without fluctuation. It has a dense whitish appearance and does not resemble a cyst. The outlines of the tumor can be felt around the orbit, above, inward and below. The lower lid is edematous from the mechanical pressure of the tumor and the globe. The tumor has never given her any pain from its incipiency to the present time. The exposure of the globe to the air has been at times very annoying and is gradually becoming more so. Her physician, Dr. Heady, to whom I am indebted for the case, says her health is very good. She comes of healthy stock and there is no history of cancer in the family.

The operation was done in the following manner: the outer commissure was first severed and then the adhesions around the tumor separated. The attachment of the growth over to the outer portion of the orbital wall. Its removal was not difficult and was accomplished without sacrificing the globe, but was followed by excessive hemorrhage. I then decided to remove the eye and packed the cavity to control the bleeding. The wound healed kindly and there has been no return since.

The tumor was ovoid in shape and somewhat flattened on its posterior surface. It measured 30 mm. in breadth, 30 mm. in length and 20 mm. in thickness. The entire surface was smooth and shining with the exception of that portion which was attached to the bone.

The specimen was hardened and examined by Prof. S. P. Kramer who wrote me as follows: "The examination of the tumor handed me proves to be an angioma-myxo-sarcoma. The section shows a large number of dilated blood vessels with thin walls. The remaining tissue is a combination of sarcomatous cells with a considerable admixture of fibrous connective tissue and a hyaline tissue made up of branching cells and a hyaline or mucoid intercellular substance. These tumors have also been called angio-sarcoma-myomatodes, and have been described by Sattler and others as occurring in the tear gland."

NÆVUS OF EYELID, WITH EXTENSIVE SECONDARY CONJUNCTIVAL INVOLVEMENT.

Presented to the Section on Ophthalmology, at the Forty-eighth Annual Meeting of the American Medical Association, at Philadelphia, Pa., June 1-4, 1897.

BY G. ORAM RING, A.M., M.D.

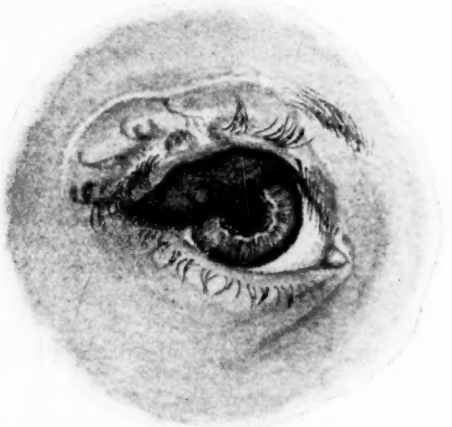
OPHTHALMIC SURGEON TO THE EPISCOPAL AND SAMARITAN HOSPITALS, PHILADELPHIA, PA.

I desire to present, somewhat briefly, the history of a case of absorbing interest, which is at present under my professional care, and which by reason of its serious character and great rarity, will form a proper subject for the consideration of the Section.

On Feb. 13, 1897, through the courtesy of my friend, Dr. J. Cardeen Cooper, a female, M. M., aged 18 months, was referred to me for treatment of a nævus of the right upper eyelid. Dr. Cooper has very kindly furnished me with a history of the case, previous to the date of my examination, the child having first come under his observation in June, 1896, five months after birth. At that time there existed on the right upper lid a nævus of the size of a small shin bark, which the mother stated had grown in about two months, as at birth there had existed only a small mark about the size of a pin's head, near the edge of the lid. There was absolutely no conjunctival involvement, nor any apparent evidence of defective vision.

As the nævus continued to grow, it was operated on by one of the general surgeons of our city, by ligation, and at the time of operation was as large as a small English walnut. Five deep sutures were placed at the base of the growth, which then involved the arch of the brow. In one week it sloughed off, leaving a healthy ulcer which healed rapidly without interruption, but with some contractile cicatrization. For three or four weeks the condition remained apparently stationary, then began the protrusion of the mucous membrane, which gradually reached the proportions which existed when I first saw the case, about nine months after the original operation.

On the skin surface of the lid are several purplish red areas of discoloration, with a number of markedly dilated vessels, between and around which the cicatricial area can be distinctly outlined. There is a cicatricial line occupying the outer three-fourths of the brow, a few hairs still remaining at the inner fourth. The lid is showing evidence of cicatricial ectropion. A number of the lashes at the central border have grown upward and external to this area, for about a quarter of an inch, the lashes are wanting. A purplish red mass projects down from the conjunctival surface of the outer three-fourths of the lid, which at its most pendant portion is about 12 millimeters deep. When the lid is everted, the appearance of the inner two-fifths of its conjunctival surface was normal; the external three-fifths somewhat suggesting the appearance of a mass of granulation tissue, which extended well back into, and involved the retrotarsal folds. The line of demarcation between the normal conjunctiva, and the area of secondary nævoid involvement is very sharply outlined. The many dilated vessels were easily recognized, and there was some evidence of extension into the orbital tissue. The accompanying water color sketch, by Miss Margaretta Washington, shows quite accurately the external appearance of the lid, after a slight contraction, the outcome of the operative procedure adopted.



The little patient is an only child. No history of miscarriage is present upon the part of the mother. There seems to be no inherited tendency to syphilis, cancer or tuberculosis, and the child gives evidence of being well nourished. The fundus of the affected eye shows no abnormality, and the condition of the fellow eye is normal. There are no enlarged vessels at any other part of the body, nor any hypertrophy of the pre-auricular or cervical lymphatic glands.

I have operated on the case five times by electrolysis, twice inserting a needle attached to the positive pole, deeply into the growth, and three times with the insertion of needles attached to both poles. There has been some slight contraction, but the result has

not been markedly encouraging. I have realized the possible danger of performing an excision, and have questioned the propriety of attempting so radical a measure, in consideration of the extensive involvement of the conjunctiva. After the removal of the growth, a plastic operation will be required.

Dr. Wm. F. Norris, who kindly saw the case in consultation, suggested the continuation of electrolysis, and advised against extirpation, unless permission were granted to enucleate the eyeball, if found necessary.

As of interest in this connection, I desire to refer to three cases of nævus, reported by Mr. Simeon Snell, in the "Transactions of the Ophthalmological Society of the United Kingdom" (1893).

Case 1.—A girl of 20, subject from birth to a nævus of lip and cheek, developed at 18 years of age, a small purplish-red tumor of the plica semilunaris, after the lip growth had been operated on. The caruncle was not involved further than its surface was traversed by a series of enlarged vessels.

Case 2 was a boy 4½ months, in whom a bluish tinge was seen through the integument in the upper angle of the right orbit. The depression of this angle was by a rounded elevation about the size of a bean. In addition to this, over the inner part of the sclerotic in the conjunctiva, was a band of narrow vessels, several coils running toward the cornea. Beginning near the plica semilunaris, this band ran directly outward toward the cornea, and then skirting this, it reached the middle line above, and passed backward over the globe, and was lost under the eyelid deep in the orbit.

Case 3.—An adult female with an angioma of the left conjunctiva. The eyelids on this side were normal, but a rounded swelling was noticed moving with the motions of the globe under the upper lid. It was about the size of an ordinary blackberry, of a deep livid color and passed underneath the upper lid. The greater part of the tumor was disclosed in raising the lid and occupied the middle third of the exposed surface above the cornea. It had apparently existed since childhood, but was completely dissected out under ether.

In the first and second cases, the treatment consisted of repeated applications of ethylate of sodium, cocain being first instilled, and the ethylate carefully applied with a brush, care being taken to confine the application strictly to the part desired to be touched.

In the first case five applications, intervals, one week, removed the growth and in the second, four applications caused it to almost disappear.

DISCUSSION ON PAPERS OF DR. AYRES AND DR. RING.

Dr. S. T. RISLEY of Philadelphia—I have seen no counterpart of the very interesting case presented by Dr. Ayres; I have seen one which aside from the operative interference seems to be a counterpart of the one presented by Dr. Ring. While listening to Dr. Ayres' paper I was impressed by the fact that one must be very much in doubt of the character of an orbital growth in the majority of instances. I have seen no angioma of the orbit, but have seen a large number of orbital growths of one kind or another. I only want to urge in view of this uncertainty, conservative treatment in their management. In two cases that I know of where operative procedures were decided upon, and declined, the growth disappeared under the use of iodid of potassium. I feel, therefore, like recommending conservative treatment first.

The case I referred to as resembling Dr. Ring's occurred in a child only a few weeks old when I first saw it. There was at the upper and outer end of the left eyelid a bluish tumor the size of a split pea, which when the child cried would become still more blue and very much enlarged. It was obviously congenital. When the child was three months old, they had previously declined any operative interference, the growth occupied the outer half of the eyelid and the eyeball was slightly displaced. When the child was lying prone the tumor became very much enlarged, bluish on the surface, and when it cried violently the distension would lead you to pacify it lest it should burst, the tissue seemed so thin. The child died of an intracranial affection and nothing was done to the eye. I think it was congenital and that its origin was in the orbit.

Dr. HERMAN KNAPP of New York—With regard to cavernous tumors in the orbit I have had some little experience. These tumors, I think, should be extirpated. I treated some with electrolysis, but my success was very poor. They can be removed without fear of hemorrhage. If they are in the lid and do not extend very far back into the orbit you can clamp them and have a practically bloodless operation.

There is another group that is more difficult to deal with, but can be dealt with by extirpation; that is, those that are seen in the lid, but extend also deeply in the orbit. They appear usually in the inner canthus and the lid constricts them so that the portion outside, with that inside the orbit, gives them somewhat the resemblance of the old saddle-bags; they are divided into two portions. I remember a case of that kind in a child that came to me twenty-two years ago in New York. I extirpated that tumor by removing only the orbital portion. It was a true cavernous angioma. I introduced the spatula into the orbit, between the eyeball and the tumor and compressed the afferent blood vessels. I had another case of the same kind in Heidelberg and this has always been my course with these tumors, to extirpate that portion that contains the afferent blood vessels and leave the rest to shrink.

Dr. J. E. WEEKS of New York—These tumors have always possessed a great interest for me because of their congenital origin in most every case and because of their tendency to increase rapidly in the young and much more slowly in the old. I have vividly in mind the case of a child that came to me at the age of three months with a small nævus of the left lid and a cavernous development in the deeper structures. The growth was small and I thought to destroy it by electrolysis. This was tried quite thoroughly and some shrinkage took place, but the deeper growth continued to develop and I soon found that method entirely useless. The patient disappeared for a short time and when I saw the case again the eyeball protruded, the cavernous growth extended to the cheek and I asked for a consultation with a general surgeon, who advised that nothing could be done. I have in a number of cases removed them by extirpation and it seems to me that the advice Dr. Knapp gave me when I was with him is good: "Remove those growths as early as possible and remove them thoroughly for they have a sarcomatous nature." If we examine them we find cells in the trabecular spaces that are decidedly sarcomatous. Originating congenitally, the malignancy is extremely slow, but seems to gain as they advance. Nothing should be thought of but their complete removal and if that is done the tendency to return is *nil.*

Dr. G. E. DE SCHWEINITZ of Philadelphia—I saw the case that Dr. Ring has described some time before he did, probably six months, and am interested in hearing his result. I think if Dr. Knapp had examined the case then he would have said it was not one for the operation of excision. I advised the parents, after consultation, to let the growth alone for the present, but also explained the chances of electrolysis. If extension of the growth should manifest itself, an operation was advised. I have no experience with the ethylate of sodium. Snell has highly recommended it, but it would be well to confirm his results.

Dr. S. C. AYRES of Cincinnati—I have had a case a great deal like Dr. Ring's. It was a baby three months old, one of a pair of twins, and very delicate. The tumor was in the lower, outer portion of the right orbit. When the baby cried it would fill up and look as if the skin would burst. The conjunctival vessels seemed to have at times a pulsating appearance, though I do not think it was aneurysm. I tried electrolysis with very satisfactory results; there was a great deal of shrinking of the tumor. The baby looked as if it would die if it lost an ounce of blood and so was allowed to return home, and when it returned in October the tumor had not grown. I then resorted to the method of extirpation. It was impossible to get a clamp to enclose it, but putting one-half of the Snellen ring clamp over the skin I made an opening through the skin and dissected the whole thing out, uniting the wound in the skin with sutures placed deep. I have a photograph of that child when 7 years old and aside from a little scar the whole disease is obliterated.

SURGERY ONE HUNDRED YEARS AGO.

AN HISTORICAL STUDY

BY DR. GEORGE FISCHER.

DEDICATED TO THE GERMAN SURGICAL ASSOCIATION.

TRANSLATED FOR THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

BY CARL H. VON KLEIN, A.M., M.D.

(*Continued from p. 34.*)

XIX.—DISEASES OF THE URINARY AND GENITAL ORGANS AND OF THE RECTUM.

The *amputation of the penis*, indicated in gangrene and carcinoma, was often performed with success provided that the inguinal glands were not already swollen. The amputation was in most cases made with the ordinary bistoury or a sickle-shaped knife (C. C. von Siebold). If the cancer was limited to the gland, one could cut through the skin and corpora cavernosa with one stroke of the knife; but if it was necessary to amputate close to the symphysis, more of the skin than of the corp. cav. had to be removed, which was greatly preferred (le Dran) because the latter immediately retracted so that the bleeding vessels could not be found. A few first separated the skin with a circular incision, and drew it back, before the corp. cav. were amputated (B. Bell and Warner), which others however considered as unnecessary (Richter). The hemorrhage from the arteries required ligature, since neither styptics nor compression were reliable enough; by the latter method patients were seen to die from loss of blood, two hours after the operation (B. Bell). But the hemorrhage of the fungous corp. cav. could be arrested by moderate pressure, or by sprinkling it with a powder of colophony or gum arabic. In an amputation close to the symphysis the flow of blood was sometimes excessive; in that case the ligature might fail, but compression with agaricus, cold water (Siebold), or the hot iron (Sabatier) accomplished the purpose. In such cases they advised previously inserting a catheter to prevent the contraction of the stump as far as possible, and in order to be able to seize the decussated vessels more readily (Ollenroth). It was also attempted to apply a tourniquet or a small bandage to the penis (C. C. von Siebold). Immediately after the operation, and until the wound was healed, a catheter was introduced, that the urine might not wet the wound, and the orifice of the urethra contract or entirely close. The fear of hemorrhage led Ruysch to the constriction of the penis. He was followed by Bertrandi, Palucci and Heister, who inserted a silver tube into the urethra, and bound a strong packthread around the member. Sabatier sought to perfect this method by first making the incision into the skin and then inserting a cotton cord saturated with nitric acid. The fearful pain must cause every surgeon to shrink from this cruel operation; it was forgotten until von Graefe again returned to it.

On account of the close relation between surgery and obstetrics in the last century, it may be permitted to introduce an operation pertaining to the latter, which made the greatest sensation a hundred years ago. This was *symphyseotomy*. Indeed, Pineau had suggested the operation in the year 1575, and Cl. de la Couruée of Vesaul performed it in 1655 upon a woman who had died in labor; but both were forgotten. Sigault of Paris rediscovered it in 1768 and made the suggestion to the Académie de Chirurgie that instead of the usual deadly Cæsarean operation in case of a small pelvis, the junction of the os pubis, which often yielded in simple births, be separated and the pelvic cavity thus enlarged. Ruffel, who was appointed as commissioner by the Academy to make a report in the matter, expressed himself as unfavorable to it, in consequence of which that body deferred its judgment. There the matter rested for several years. Sigault would not admit that he was in error, although even the elder Baudelocque distinctly opposed him, and at his doctor's promotion he once more defended the operation (1773). The illustrious Peter Camper came to his assistance. Attracted by the new idea he made successful experiments on swine and observed that the os pubis united again, and he found the operation very easy. When Louis, the secretary of the French academy, asked him for his opinion he expressed himself in a letter to von Gesscher in favor of the separation of the os pubis as opposed to the far more dangerous and not absolutely necessary Cæsarean section (1774). On the first of October, 1777, Sigault for the first time performed a symphyseotomy upon a Madame Souchot, in the presence of his friend Alph. Leroy. She had a narrow pelvis, with a two and a half inch conjugate diameter, and had already had very difficult deliveries four times, always bearing dead children. Physicians and surgeons, among them even Levret, were convinced that the woman could not bear a living child without the help of the Cæsarean section. As her fifth confinement approached, Sigault, who had previously suggested symphyseotomy, but in vain, was called and he performed the operation immediately. He cut through the soft parts from somewhat above the os pubis almost to the labia, inserted his finger along the symphysis and separated the ligament and cartilage. At this moment the two parts of the os pubis separated themselves two and a half inches! He then opened the sac and removed a living child. The entire operation lasted scarcely five minutes. On account of defective light he had inadvertently injured the neck of the bladder. In sixteen days the wound of the symphysis was closed, and in forty-seven days the woman could walk about. Sigault immediately reported the operation to the medical faculty of Paris, to which body the woman was presented in December. The mother and child lived; but the former suffered from a vesicovaginal fistula and prolapsus of the vagina and uterus, and her gait was uncertain and difficult. The operation made a powerful impression. The medical faculty took it up with enthusiasm, had Sigault's treatment published and distributed, had a silver medallion with the date of the operation struck in his honor, and conferred a pension of 360 livres upon Madame Souchot because she had permitted the operation. Even from the pulpit this great benefaction which had fallen to the lot of humanity, was proclaimed. In the following year Sigault performed symphyseotomy four times, three of which were successful, when at the same time four Cæsarean sections in Paris resulted fatally. But soon a few ill consequences of the separation of the os pubis were made known; the women died or were left with wearisome infirmities. The number of its opponents increased and for years they contended with the greatest violence over the operation, which had become the question of the day. In the Hôtel Dieu in Paris, many experiments were made on cadavers, from which it was established that the small pelvic measure was enlarged only slightly, and that in order to facilitate the passage of the head, the parts of the os pubis must be separated to such a degree that the posterior articulation must

necessarily be lacerated. Sigault was charged with performing the operation when there was no need for it, and it was said that the pelvis of Madame Souchot was not so narrow as he had asserted; it was also doubted if, in his operation, the os pubis had of itself yielded two inches. In Germany, C. C. von Siebold first performed the operation (1778); the child was dead. He was obliged to saw through half of the symphysis, which was ossified (for which purpose Aitken devised the chain saw in 1789), and forcibly separate the os pubis. After a few weeks the woman was cured except a small fistula, and a year later was entirely well; the callus between the severed os pubis could be distinctly felt from the vagina. According to Siebold, symphyseotomy promised to be of use only in one case, when the small pelvic measure was not less than three inches and the head lay forward, and was not unusually large. While Loder and Mohrenheim favored the operation but with limited indications, Richter rejected it entirely, because it did not increase the small pelvic measurement, or did so only at the cost of laceration of the posterior articulation, and altogether was not so free from danger as had been supposed, and resulted in many difficulties. W. Hunter, in England, opposed it and admitted only the single very rare indication when, in case of a large pelvic cavity, the head of the child could not descend so low that it could be reached with the instrument. On the contrary, B. Bell expressed himself very favorably toward it and where only little hope was left he preferred the symphyseotomy to the Cæsarean operation or, indeed, to the use of an instrument. In spite of all the pomp with which this operation had been introduced, in spite of all the endorsements on the part of a few clever men, yet in later years it could never obtain acceptance. Still less success had the so-called pubiotomy of Aitken in Edinburgh (1786), which was never put in practice.

In the treatment of *vesicovaginal fistula* surgeons groped in darkness, for they had turned aside from the only path by which progress was to be attained. Already in the year 1663 Roonhuysen of Amsterdam had made the suggestion to trim the edges of the fistula with a knife or scissors through a speculum, and then unite them by a twisted suture. No one remembered Völter, who (1722) first advised a suture after previously trimming the fistula, and remarked: "This operation, to be sure, will appear to some as strange and difficult, as it is in truth delicate and difficult enough. Nevertheless, I have seen it performed once in the case of a gentlewoman, although it did not succeed." In the main the following treatment was made to suffice. In order to prevent the urine from forcing its way through the fistula into the vagina, a curved catheter was introduced and kept in place by an instrument of Desault. This had the form of a truss whose circle surrounded the pelvic region. Opposite the region of the pubis was placed a plate with a silver staff, to which the catheter could be screwed fast and thus held immovable in the bladder. In order to bring the edges of the fistula nearer together a wick of linen or a bunch of lint shaped like a finger of a glove, covered with elastic gum, was inserted in the vagina. In this way the lower edge of the fistula was brought close to the upper, and the round orifice was changed to a narrow fissure. Desault asserted that he had completely cured old and large fistulæ in this way, even after six months or a year.

In case of *atresia of the vagina* an early operation was necessary, for the menstrual blood might, as Richter said, force its way through the lungs and kidneys. If, as in most cases, the vagina was closed by a simple membrane, a longitudinal or crucial incision sufficed, with the insertion of a plug to prevent a fresh obstruction. But the vagina might be grown together, entirely interwoven by abnormal ligaments, or even completely closed. In all operations the procedure depended chiefly on whether the obstructed part was short or long. In the former case the lancet or a two-edged pharyngotome, with a gradual enlargement by means of wax bougies, sufficed; in other cases Richter made the suggestion that as soon as one felt, in the rectum, behind the symphysis, a sac distended by blood that it be lanced with a trocar, through the rectum. If the mouth of the uterus was closed by a membrane it was opened with a curved trocar; in case of a total symphysis a crucial incision was made.

In *hydrops ovarii*, although the patient might live for twenty years, puncture was the only remedy, and it, as a rule, afforded only a temporary relief, since the sac soon filled again. Often the puncture appeared to accelerate the ulceration of the sac and to precipitate death by exhaustion. In case of a small tumor without much pain an operation was rather avoided. W. Hunter in particular advanced this view; he regarded hydrops ovarii as incurable and guaranteed the longest life to those patients who used the fewest remedies. For the rest, the puncture with a thick trocar was regarded as the best method of operation. Since a relapse was not infrequent a radical cure was also brought into question. For that purpose le Dran advised opening the tumor with an incision four inches long, maintaining a free discharge and making injections. Some successful results were obtained by this method, but many objections were urged against it, as for instance the increased suppuration, exhaustion, etc. As its unsuccessful result, according to Richter, was occasioned by the admission of air, he proposed to introduce a trocar and then a bent tube, allowing the latter to remain. In this manner Ollenroth saved his patients. When Houstoun (1724) after making an incision had successfully removed a large part of the ovary, the actual extirpation of the ovary was proposed by de la Porte and Morand. W. Hunter was thoroughly opposed to it; Theden, Schmalz and Callisen favored it, and the last named considered extirpation as the only saving remedy, in case of increased swelling, although he doubted whether a woman would consent to it early enough. That the human body could endure the operation was known from history, where it is related that a German sow-gelder "in his wrath, opened the sides of his daughter, all too much in love, and removed both ovaries," whereupon her desire for love ceased. Pott also had successfully extirpated both ovaries which lay in inguinal hernias. This operation was not perfected during the last century; in the year 1809 the first extirpation of an ovarian cyst was performed by the American, Ephraim McDowell of Kentucky.

Among the diseases of the rectum *fistula ani* possessed the greatest interest. The investigation and classification of the fistulæ were in the same state as today. A treatment without operation gave promise of success if the fistula was short and broad and the cause easy to remove. In this way J. L. Petit with mercury cured the fistulæ in syphilis. The operation was counseled against, if the fistula caused no special

pain and did not grow larger and the constitution was not undermined. Richter also said he had observed the development of a black cataract. As consumption might afterward arise (Dumagie) it was always hazardous to operate upon patients with weak lungs. Pott did not agree with the widely promulgated opinion that a healing should not be attempted in case of cachectic people, because the discharge was salutary for the patients; he said if nature had uses for such suppuration the healing or not healing seldom lay within our power. The treatment of rectal fistula had changed to an extraordinary degree. Every age has had its methods; hot irons, corrosives, injection, enlargement and compression successively prevailed. The operation had become so barbarous that the people had a mortal terror of "fistula cutting." This explains also the fear which Louis XIV. had of an operation for his insignificant rectal fistula; he resolved to allow the operation only after many of his subjects had for years remained uncured by various remedies suggested. His body surgeon, Felix, who had invented the royal bistoury for that purpose, operated upon him successfully in 1687. The incision now became the most popular method and all others retired into the background. Sharp supplied special shears for this purpose. A. Monro, Pott, Savigny and many others devised special knives. Most of these were inapplicable and complicated. Pott's bistoury is sufficiently well known; in Savigny's instrument, one of the most convenient, a pointed blade attached to the side of a slightly curved scalpel, can be projected and drawn back. The operation lost its terror when Pott showed that a simple cut which split the fistula throughout its whole length would suffice, and that the callous surrounding did not need to be cut out as J. L. Petit had recommended. If the inner fistular opening lay so high up that it could not be reached with the finger, then a gorget (Runge of Bremen) was introduced into the rectum, the knife being thereupon inserted and following it into the passage (as in the ordinary instruments of today for the operation on vesico-vaginal fistula and on the ear and mouth cavities, at that time the handle of the gorget was fashioned at an angle so that the hand which grasped it lay to one side and did not obstruct the field of operation). Violent hemorrhages were stopped by cold water, the tampon or hot iron. In the after-treatment, in order to avoid a too hasty closing of the cut, a fine compress of lint or a little linen bandage spread with digestive salve was applied; the plugging up of the wound was considered just as reprehensible as to place nothing at all in it (Pouteau). The ligature known by Hippocrates was replaced by the incision, but was snatched from oblivion by Foubert (1757); P. Camper, Desault and Richter extolled it. For this purpose there was used a thread of hemp, silk, horsehair or a wire of lead or gold, or a gut string. As the ligature caused little pain and no hemorrhage the patient remained free from fever and could go about, and therefore many surgeons preferred it to the cut in spite of the fact that the latter led to quicker healing, especially when the fistular opening was deeply located, in case of chronic diarrhea, in feeble and timid persons and in hospitals, where inflammation prevailed. Only in complicated fistulæ with several openings and callosities was the incision unconditionally necessary. If there were no unusual circumstances Desault used the incision and the ligature interchangeably, often for no other reason than to show his pupils both methods. In 1780 in no Paris hospital were more rectal fistulæ taken for treatment than in the Charité, because there a ligature was used in operating, while in the other hospitals the incision was preferred. Extirpation of the fistula was abandoned.

Hemorrhoids were considered as varicose distensions of the rectal veins, although in most cases an effusion of blood under the inner membrane of the rectum was said to form the sac. They were not operated on unless it was necessary; but the opinion that the discharge was a critical one which removed injurious matter from the body, and that its obstruction was in the highest degree harmful, as Heister believed, was contradicted (B. Bell). In case of violent hemorrhages a silver tube insulated with linen or a piece of gut filled with water was inserted, or a stricture was made whenever possible. If exhaustion from loss of blood followed, an operation was the only trustworthy remedy. There were three methods, incision, splitting and ligature, of which the incision deserved the preference. The empty sac was cut off with shears in such a way that a small part of it remained, which was to cover the wound and further prima intentio and the arrest of the hemorrhage. In this way inflammation, contraction of the intestine and hemorrhage were rarely to be feared. If the hemorrhoids were so high above the sphincter that they could not be brought down through the orifice of the anus, then, according to J. L. Petit, an oval lint-tampon with two strong strings was pushed up past the place where the node was situated. In drawing up the strings the tampon was shortened, became thicker and by virtue of that so pressed the rectum that the node protruded from the anus. The splitting of the skin over the varix and subsequent extirpation of the venal node (J. L. Petit) found but few advocates. On the contrary, in case of large nodes, out of fear of hemmorrhage, the ligature was much extolled (Heister, Sharp, B. Bell), and was discarded by others on account of the severe pain and inflammation (Richter). Eradication by means of the hot iron, known even in the time of Hippocrates, met serious opposition. If the prolapsed node became squeezed then it was returned to its position as quickly as possible and if necessary for that purpose the sphincter was split or the mouth of the anus extended with the speculum. The severe pain produced by the repletion of blood or inflammation the surgeons sought to allay by strict diet, application of cremor tartari and sulphur, leeches, or a puncture with a lancet; B. Bell recommended a salve of nutgalls and, upon Cullen's advice, the internal use of copaiva.

The *atresia ani* exhibited various forms. If, as in most cases, the anus was obstructed by a simple membrane a splitting or a crucial cut and the removal of the flaps sufficed. If, on the contrary, in normal anus, the rectum was obstructed for some little distance by a membrane, a case which was curable only when the place could be reached with the finger, then it was opened only with a pharyngotome. In case of a deformed anus when the rectum ended in a blind sac the operation was so much the more difficult the further back the sac was located from the external membrane, and the result was often fatal. After the insertion of a catheter into the bladder, proceeding carefully, the surgeon sometimes had the good fortune to be able to trace the sac from feeling the fluctuations. If the intestine was lacking there was no other resort than

to supply an artificial anus after the methods of Littre or Callisen.

Desault first taught the proper treatment of *strictures of the rectum.* Up to that time little heed was given it and it was known only in isolated notes, while most practitioners gave their chief attention to constitutional defects and gave less thought to local affections. They gave antisyphilitic remedies, produced artificial sores upon the os sacrum and thigh, and indeed, extirpated the diseased spot. Desault recommended the tent as a principal remedy for the removal of stricture and the dispersion of callosities. He smeared it with cerate, daily introduced a thicker tent, and in this way obtained the most successful results.

(To be continued.)

SOCIETY PROCEEDINGS.

Tri-State Medical Society of Alabama, Georgia and Tennessee.

Proceedings of the Ninth Annual Meeting.

The President, Dr. W. F. WESTMORELAND of Atlanta, called the meeting to order and it was opened with prayer by Rev. J. B. Hawthorne.

Gov. ROBERT L. TAYLOR welcomed the society to Nashville in an earnest and pleasing address. The President responded fittingly on behalf of the society.

The President then delivered his annual address;

CARCINOMA OF THE BREAST,

In which he deplored the fact that cases are referred to the surgeon too late for operation. He called especial attention to the importance of early diagnosis. Every tumor of the breast is suspicious. All writers agree that inflammation of the breast predisposes to cancer. Traumatism plays an important part in causation. In his experience, when there is a bad family history, the tumor will return. He called particular attention to Halsted's operation. The greatest infiltration is in the skin next the subpectoral and axillary glands. Cells may be widely scattered early. Carcinoma extends through the vessels. The pectoralis minor should be left until the pectoralis major is excised. Everything that looks suspicious in the axilla should be removed. Nerves should be cut, especially if connected with infiltrated glands. Operation should be complete, even to excising of axillary veins. In a case where a complete operation did not seem necessary there was a return in four months. If half can be saved it will be as good as can be expected. No living man can lose only 6 per cent. if the three years rule is observed. Figures are fallacious. The large area if left to granulate and cicatrize, predisposes to carcinoma. As a rule, he grafts within a week. All cancer patients have a lack of red blood corpuscles, the hemaglobin reduced to 90 per cent. When the hemaglobin is reduced 15 per cent. the patient will die. This accounts for many lost after operation with no apparent cause.

Dr. J. B. COWAN said that it was not an easy matter to clean out the axilla. He had seen Abbey cover half the bare surface by undermining the surrounding skin and stretching it.

Dr. R. M. CUNNINGHAM said that we did not know what caused cancer. It spreads by lymphatics. It can not be diagnosed in the operable stage. All tumors of the breast are suspicious. If in doubt, operate. If the skin is undermined too far it will slough. Cancer is rare in the male negro. Cancer of the breast is rare in the negro. When tissue is broken down we will get no good from operation.

Dr. B. SHERWOOD DUNN of Paris, France, said that he fully concurred with the position of the essayist that the operator ought to remove not only such tissue as gave rise to suspicion, but to go further and remove tissue which he was satisfied to be healthy, for the reason that the line of demarcation can not be readily defined. He felt that clinical experience did not support the favorable statistics reported by most operators, and that operations for carcinoma rarely resulted in permanent cure.

Dr. PAUL F. EVE said that if all cancer cells were removed there would be no recurrence. He removes tissue which seems normal. Before regional infiltration, cancer can be removed; then there will be no return. We are looking to the day when the surgeon will recognize all cancer tissue and remove the same.

In closing the discussion, Dr. WESTMORELAND said that Dr. Abbey today would not try to cover a wound by stretching the skin over it. This is bad practice. In the last year he had a large percentage of cases in negroes, so that Dr. Cunningham's idea, which is also in Warren's "Pathology," is not correct. The axilla can not be cleaned out without removing the pectoralis muscle and cutting the veins which come from the axillary plexus. Drawing up the skin will restrict movements of arm.

Dr. J. B. COWAN, Tullahoma, Tenn., discoursed on the subject of

PSYCHOLOGY,

And said that the subject should be differentiated from mental operations. We ought to know something of this science. We all use it consciously or unconsciously. No man who studies psychology can be a skeptic. All the phenomena we see in the external world are but the result of the co-relation of forces acting on matter properly arranged. He differentiated between the material man, the mental man and the psychologic man.

Dr. G. W. DRAKE said that the differentiation made by the author was correct. We study the relations between body, mind and soul by manifestations. Matter returns to the original condition. Mind and soul remain in an unrecognizable condition until the resurrection.

Dr. J. P. STEWART said that mind from a medical standpoint refers to the mind and is manifested by certain idiosyncrasies, notions, whims, fancies, vagaries, and even manias of our patients. We may by our psychologic influence over certain neurotic patients, restore them to health and happiness by suggestion, hypnotism, mesmerism or Svengalism, get control of their minds by the influence of a stronger mind. He hardly thought that we have much to do with the soul, though the idea of soul and its final end may in some degree cause these psychologic manifestations in our hysteric patients.

Dr. W. FRANK GLENN said he never could understand the triune nature of man. He believed that man's spirit was his *ego*, his immortal part, himself. He believed that he lived in every cell of his body and when death came his spirit simply abandoned the material residence and advanced to higher spheres of existence. He believed there was a spiritual body which was recognized by spirit just as clearly as a physical body was recognized by a material man.

Dr. PAUL F. EVE asked Dr. Glenn, "What is life?"

Dr. GLENN said that he could not define life, but it might be described.

Dr. G. W. DRAKE said life could not be seen, could only be judged by effects. In a paper before the AMERICAN MEDICAL ASSOCIATION he took the ground that the mind does not become insane. The part affected is the brain. So-called mental disorders are not mental but material. The brain is the part which gets out of order. The mind is the power which controls the brain.

Dr. R. M. CUNNINGHAM differed from Dr. Drake that the mind is simply the power that moves the brain. There is as much mystery in cells of liver forming bile, or of the kidney secreting urine, as cells of brain producing phenomena of mind. The power of each is God-given. Mind is a phenomenon of physical action.

Dr. B. SHERWOOD DUNN said that Darwin's theory was built without foundation, as he failed to account for the first cell. The physiologist fails to show what is the incentive that puts in motion the gray matter in the generation of thought.

Dr. COWAN, in closing, said that we have cell activity in vegetable as well as in animal life. We confound mind with soul. The soul uses the mind. Writers make the mistake of not differentiating. Not a triune man, the mind is simply the instrument used by the soul.

Dr. SEALE HARRIS of Union Springs, Ala., read a paper on "The Arrest of Smallpox in the Vesicular Stage," based on the idea that smallpox would stop after the vesicular stage if there was no mixed infection, the idea being to prevent by applying antiseptics to the skin. Quoting from Bryan and Bibb he related cases. In a case seen by the writer the treatment was a success. It prevents pitting, secondary fever, the intolerable itching and fearful stench of the pustular stage.

Dr. R. M. CUNNINGHAM said the pus in smallpox was a secondary infection, but he did not believe the skin could be made antiseptic, though the case reported seemed to show that the treatment had been a success.

Dr. FRANK TRESTER SMITH said that it was not necessary to render the skin aseptic if the number of the germs was reduced sufficiently, their development prevented or retarded.

Dr. J. B. COWAN related a case where a negro with smallpox lay in a brook an hour, with the result that the disease ran a much shorter course than others in the same epidemic.

Dr. SEALE HARRIS, in closing, said that while we might not prevent absolute pus formation, it might be lessened so as to prevent many unpleasant results.

Dr. LLEWELLYN P. BARBOUR of Tullahoma, Tenn., read a paper on "The Pathology and Diagnosis of Early Phthisis," including in this term the stage where there is a breaking down of tissue. In some the diagnosis is easy, in others it can be made only by investigating symptoms that seem unimportant. Skill is required to appreciate physical signs, but the clinical symptoms will often make the diagnosis. When the patient says he does not raise anything you may get a little the first thing in the morning. Bacilli may not be found in an undoubted case. Hemoptysis is almost certainly due to tuberculosis. Pleuritic pains are characteristic of phthisis; may be absent, as may also increase of temperature. Absence of temperature indicates slow advancement or arrest. Take temperature every two hours, ten to twelve days. If increase is two degrees with exercise, it is probably phthisis.

Dr. PAUL PAQUIN said that the basis of tuberculosis was a battle between the tubercle bacilli and the cells in which they are lodged. The disease may exist a long time before the bacilli are expelled, hence the importance of early diagnosis. This is not so difficult. Early clearing of the throat is important. An important factor is serous pneumonia. Temperature is important, rarely above 101 degrees. This comes late when we have a mixed infection. Malaria may coexist. Look for plasmodium.

Dr. R. M. CUNNINGHAM insisted on importance of early diagnosis, which may be made from clinical signs alone. Bacilli may be in sputum of the healthy. The altered ratio between pulse and temperature is important. Pulse is faster than for temperature. Physical signs show lesions which may not be tubercular. There may be a tubercular nidus with no physical signs. The crepitant râle in apex, unilateral, is diagnostic of tuberculosis. Many cases are treated ıor malaria, dyspepsia, etc. His postmortems showed tubercular matter fenced off with connective tissue capsule.

Dr. B. SHERWOOD DUNN related experiments where matter taken from the postnasal space in 1,400 cases, showed tubercle bacilli in 856. Many carry bacilli which never develop.

Dr. HAZLE PADGETT emphasized the importance of the slight rise of temperature (100.5 or 101) with perhaps no cough; slight anemia. Examine heart, urine and lungs. An early change in the vesicular murmur is important; compare with other side.

Dr. ANDREW BOYD thought that not enough attention was paid to the minute clinical history, that this is lost sight of by going off to the unknown too much. The microscope is the *sine qua non*, but the subjective symptoms come first, hemoptysis, the pulse (out of all proportion to the temperature), the general malaise, dyspnea, loss of appetite, etc. These come first, then the physical signs, crepitant râle in apex, followed by active physical signs. To sum up, he thought the subjective signs were our first guide, then objective; the physical signs and microscope to dispel all doubts.

Dr. W. F. WESTMORELAND did not think tuberculosis always began in the apex, but was there easiest found. Tubercular skin troubles have increased in his clinics in the last few years, perhaps ten times. He disagreed as to the crepitant râle, which is always associated with pleuritis.

Dr. BARBOUR thought the first lesions were at the apex and pleuritic frictions tubercular as a rule. All can not be expert in physical diagnosis, but all can make diagnosis from signs. The majority get well. Bacilli in sputum sometimes precede physical signs. A weak heart may predispose to tuberculosis. Tuberculin may be used by an expert to clear up diagnosis.

Dr PAUL PAQUIN of St. Louis read a paper on

SEROTHERAPY IN TUBERCULOSIS.

The use of serums, nature's remedies, seems to promise much, as all other remedies have failed. Tuberculosis is generally a mixed infection. With bacilli we find other germs. The nature of the mixed infection should be determined by the microscope. This is as important as the use of the microscope in the early stage. There is no one treatment applicable to all cases. Treatment should be combined. In mixed infection the serum should be prepared to meet the case. Hygienic measures should be employed, climate in certain cases; altitude is not of much importance, the benefit being due to the presence of ozone. Climate is often tried too late or may remain too short a time. Hydrotherapy is often beneficial by stimulating circulation; also massage. In dieting, animal food is best; cream better than cod liver oil; whisky and tobacco contraindicated.

Dr. L. P. BARBOUR said that climate was not a specific, only an assistant. If better in summer send to a warm climate, otherwise to a cold. Ozone is not a specific. Baker's experiments tend to show that it is harmful. Send to climate least irritating (from dust, etc.). There is no specific. We must not rely on any one thing, but individualize cases.

Dr. R. M. CUNNINGHAM called attention to the difference between tuberculosis and diphtheria. The former tends to get well by cicatrization, by obsolescence, by discharge; not analogous to typhoid or diphtheria, which are self-limited, hence serum treatment is not analogous.

Dr. L. B. GRADDY related a case which steadily got worse under Koch's tuberculin when first introduced in Berlin. With climate and other treatment it matters not if a little antitoxin is injected. He does not believe that there ever has been a case of tuberculosis of the lungs cured. In one case diagnosed as consumption the symptoms disappeared after cauterizing the uvula.

Dr. J. A. WITHERSPOON said that this is an infectious disease, but does not have a period of invasion, no incubation; if self-limited the limit is the grave. He believes in serotherapy and would not say that none ever got well, but would say that none got well except by the inherent power of resistance. He has absolutely no confidence in serum treatment of tuberculosis. These gentlemen get good results: 1. From the fact that some of the cases were not tuberculosis. 2. To the hygienic and other measures is due cure. The bacillus may be found without tuberculosis.

Dr. W. F. WESTMORELAND said that the idea that tuberculosis could not be cured should not be allowed to go unchallenged. Wherever the diseased area could be removed the disease could be cured. In view of the statistics there can be no doubt of the good results from these serums. Climate acts by giving rest to the lungs.

Dr. L. P. BARBOUR claimed that good institutional treatment gave about the same results as climate.

Dr. J. A. WITHERSPOON thought it doubtful if because a man got better in an institution and remained in good condition for a long time and finally succumbed to the disease that we should say he was cured and again acquired the disease.

Dr. L. B. GRADDY said that he thought that there had never been any cured. He could even say that some had gotten well. Many had improved and might live to old age, but bacilli would still be found in their lungs.

Dr. PAQUIN said that he had been misunderstood. He had not used the word cure. Had reported the cases as he had found them. Tuberculin is not a serum, but the opposite. Tuberculosis and diphtheria are not biologically similar and may require different treatment. His cases were not under favorable surroundings, were not picked. The methods were open, any physician could visit the laboratory.

Dr. HAZLE PADGETT of Columbia, Tenn., read a paper on "The Causes, Diagnosis and Treatment of Valvular Disease." As causes he especially mentioned acute rheumatism, Bright's disease, violent muscular effort. Diagnosis is by timing murmurs, systolic, diastolic and presystolic. Obscure murmurs may be determined in the horizontal position. Important in life insurance. Exercise may bring out murmur, also forced inspiration, then forced expiration, then suspend respiration. The future of the patient should not be darkened by telling him he has heart disease. Tell some one who is interested in the patient. Many will live years. Aortic stenosis is most dangerous, mitral stenosis akin to it.

Dr. R. M. CUNNINGHAM of Birmingham, Ala., read a paper on "The Relation of the Cause to the Immediate and Remote Results and Associated Lesions of Fractures," in which he gave a study of fractures based on mechanical principles showing that bending; compression and torsion are the usual means of fracture, the lesion in bones, in surrounding tissue and in viscera. In indirect violence injury to the soft parts is less than in direct. We are sometimes deceived in the amount of violence and consequent injury, and prognosis should always be guarded.

Dr. GEO. S. BROWN said that the amount of violence is the greatest factor in the prognosis, but when it is less than enough to cause total destruction of the circulation it is only so as the cause of the infection which is itself the most important determining factor. Mr. Lister, walking his wards with his class twenty years ago, said: "Gentlemen, I have often noticed that bad contusions not complicated by lesions of the skin nearly always do well, those with lesions of the skin have trouble. I am not able to explain this, but the one who does will make his name immortal." He afterward himself explained it and his name is immortal.

Dr. HAZLE PADGETT related a case bearing on some points in the essay. A man was hit on the head with a mail pouch, he became unconscious and died in five hours. Postmortem showed no evidence of external violence, a hematoma of the right tem-

poral region, right temporal and parietal bone fractnres; but no depression. The fracture in the temporal opened internally; a ruptured right meningeal clot about three and one-half by two and one-half, by one-half inches; on the opposite side no fracture but a ruptured pial vessel clot, thin, but about two and one-half inches long by one and one-half inches wide. In the cortex of the right posterior cerebral lobe was a small hemorrhage. Here is an illustrative case showing extensive internal injuries without external evidence.

Dr. J. B. MURFREE said: "In the treatment of fractures the cause of the injury is too little considered. This must necessarily play an important part in the treatment. A fracture produced by great external violence must be treated with great care, and be so dressed as to be inspected, while one produced by muscular contraction may be put up in plaster-of-paris and never inspected until the fracture has united. As stated, a simple fracture will do better than a compound one, but in every fracture, whether simple, compound or comminuted, we must duly consider the force that breaks the bone. I remember a case of fracture of the leg produced by external violence that was bandaged and splinted. The limb swelled and the pressure of the bandage being painful the bandage was cut. The leg mortified and had to be amputated and the doctor was sued for malpractice. We must duly consider the damage done to the soft parts as well as to the bone. A case came under my charge where a leg was mashed on the railroad. An eminent surgeon amputated at the knee joint, but when the first dressing was removed the soft tissues were found to be mortified and in time all the flaps sloughed, leaving the condyles of the femur projecting beyond the soft parts, to be covered by granulation after months of suffering. So we must duly consider the injury done the soft parts from the cause producing the fracture. The force that breaks the bone and its mode of application must be considered in the treatment of every fracture."

Dr. J. P. STEWART related the case of a fracture of the leg from the fall of a tent pole. The patient died in ten hours. Postmortem showed rupture of liver and bruising of internal organs. The force should be taken into consideration.

Dr. CUNNINGHAM related a case, in closing, where there was much injury to the leg and he wanted to amputate but the patient refused. He prognosed death, but the patient promptly recovered. The case that inspired the paper was that of a negro with a fracture into the knee joint in which there was a slough and suppuration, although the skin was not broken. The germs must have been forced through the unbroken skin, hence the importance of rendering the surface aseptic before applying splint.

Dr. J. M. MATHEWS of Louisville, Ky., addressed the Society on "Cancer of the Rectum." He said, in part, that while extirpation was the proper treatment still the application was limited. Authors claim that cases live four, five and seven years; he has a case in Louisville with cancer eight years. The rectum is divided into upper, lower and middle; lower, one and one-half inch. This may be removed. In the middle third it will surely return. The upper third involves the sigmoid flexure. This may be cut out and anastomosis made, but why? He would limit operation to the lower one and one-half inches. Pain is not always present. He doubts if operation prolongs life. Cancer patients live five to eight years. There is an allied condition which can be diagnosed only by an expert of years' experience. The only condition in cancer is to let them down easily with opium.

Dr. J. B. COWAN commended the paper for its conservatism. A few years ago every one was for heroic surgery. Now the pendulum is swinging the other way.

Dr. W. E. B. DAVIS endorsed the position taken by Dr. Mathews and thought life might be prolonged if an operation was performed in the early stage. The difficulty was that most cases came to the surgeon too late, just as cases of cancer of the uterus came after the disease has extended beyond the reach of the knife.

Dr. GEORGE S. BROWN thought that it was the exception for surgeons to operate for brilliancy rather than for the good of the patient, and those who did injured themselves.

Dr. GEORGE S. BROWN of Birmingham, Ala., read a paper on "Metatarsalgia or Morton's Painful Toe." This is an affection of the fourth metatarsal phalangeal joint. The pain is sometimes beyond comprehension. Morton suggested excision of the joint. One symptom is necessity of removing the shoe. The ligaments are so stretched as to allow the bone to press against the nerves. He thinks thin-soled shoes may be a factor in causation. Mild cases may be relieved by a stiff sole. In severe cases the joint should be excised.

Dr. J. A. GOGGANS of Alexander City, Ala., made some remarks on

APPENDICITIS,

relating fourteen cases with thirteen recoveries and one death. He thought that we were a long way from knowing the true primary cause of appendicitis; some thought it due to interference with drainage of the tube. This occurred in most cases and accounted for the pain radiating from the solar plexus, but did not account for the appendicular inflammation. Mechanical obstruction could cause pain and fatal perforation, but foreign bodies were rarely found in a diseased appendix. Fitz, in 300 cases, had found concretions in 5 per cent. Dr. Goggans had found no strictly foreign bodies. Even if found it does not show that they caused the inflammation. He thought that there was something still further to be learned about the etiology, that there is a special germ which causes the disease, that the contents of the intestine became concretions and they as well as foreign bodies became lodged in the tube on account of lessened intestinal secretion and contractility of the muscular walls of the intestine and appendix. When the attack was mild (slight rise of pulse, temperature and respiration), he waited for second attack before advising removal of appendix. If at end of two weeks there was tenderness he advised operation. In that class of cases the mortality was not more than 1 per cent. The more severe cases demand immediate operation unless death is already inevitable from sepsis. Some cases might have the operation under local anesthesia more safely.

Dr. M. C. MCGANNON said that many cases had died of appendicitis unrecognized. The mortality in early operation is 1 per cent.; very dangerous in children. Death is the rule in general peritonitis. He does not believe in waiting in the young; may wait in adults. Not necessary to operate in all cases, but it is a surgical case.

Dr. W. D. HAGGARD Jr. gave an abstract of his paper on the "Treatment of the Stump in Appendicitis." He said that in the last six weeks six patients had lost their lives from appendicitis due, he thought, to deferred operation. Operation should be done as soon as diagnosis is made. He related cases. In one with a temperature of 99, pulse 98, he found a perforation. He described the technique of Deaver of Philadelphia, cutting away the mucosa, amputating the appendix and closing with Lembert's suture.

Dr. W. E. B. DAVIS said that mild cases need not be operated on at the first attack, but all should be operated on who have a second attack. In all cases where this is severe the patient should be subjected to operation without delay, for if such cases are not operated on in twenty-four hours a fatal peritonitis may develop. There are many cases which the surgeon will see after the patient has been ill for two or three days in which it is impossible to know whether the case is one of local or general peritonitis.

Dr. H. HORACE GRANT looked upon the discussion as not merely one of methods, but one that involved the security of human life; too important to dispute about contributory details, definite data must be obtained. If ever the electric rays are so perfected as to show the picture of what lies hidden beneath the tissues in cases of inflamed appendix, the question of when to operate will vex us no longer. Until then some common agreement will greatly help. Other things being equal, *i. e.*, a safe place to operate and a competent operator, the mortality will be less if all cases are cut, but these desirable conditions are only occasionally present. He suggested three rules for guidance:

1. In all cases of fulminating appendicitis, difficult to picture but easily recognized, the operation is imperative at the earliest possible moment, before general peritonitis develops.

2. In mild or moderate cases in which operation is declined or hesitated about, or where conveniences for safety are not at hand, we are justified in waiting thirty-six to forty-eight hours to watch the course of the disease. It is to be understood that while such a course is not always safe, even when it appears to be, yet the danger does not justify an imperative demand nor an incompetent operator.

3. In all cases of moderate severity in which distinct, genuine improvement is not manifest after forty-eight hours, the operation should be demanded.

Dr. J. A. WITHERSPOON asked Dr. Grant whether we should use opium and whether we should use a purge?

Dr. Grant replied that the purge was indicated, the opium was not; it would mask the symptoms.

Dr. LOUIS FRANK believes that as soon as the case is diagnosed it becomes surgical and is no longer medical. Some cases should not be operated on. The desperate cases should be avoided, as they bring surgery into disrepute and make others loth to submit to operation. Symptoms may be relieved by salines, but the pathologic cause remains. Mortality would be less if operation was as soon as diagnosed.

Dr. GOGGANS closed the discussion by saying that he would

treat medicinally mild first attacks; if the second, would operate. Purge aids antiphlogistically by unloading veins.

Dr. HAGGARD said that the diagnosis was much easier now than formerly. He would operate first and give salines afterward. Opiates should never be given in early cases. Operations delayed and hopeless cases bring surgery into disrepute.

(To be continued.)

PRACTICAL NOTES.

An Antifat Diet for Pregnant Women with Deformed Pelvis.—Leusser has been reviving Prochownick's suggestions to secure small children by limiting the patient to a nutritious but antifat diet the last two months, and reports in the *Münch. Med. Woch.* (No. 30) his success, especially marked in one case (conj. diag. 10.5), who had borne eight children, weighing on an average 5,500 grams, labor lasting from two to five days. The result was the spontaneous, easy birth of a child weighing 2,900 grams after two hours' labor.—*Wien. klin. Woch.*, November 25.

Treatment of Surgical Tuberculosis with Gum Resin Euphorbium.—Penières reports the successful treatment of tuberculosis of the ganglia of the neck, of the skin, bones and articulations, with subcutaneous injections of euphorbium in glycerinated water in the proportion of 1 to 4,000. The dose of 1 c.c. is well tolerated even by children, and is increased for adults. The slow effect must not be hastened by too frequent injections; one a week or fortnight is enough. The cure is completed without induration of the tissues. Nineteen cases.

An Office Use for Peroxid of Hydrogen.—A good thing for the physician to have constantly on hand in his office is peroxid of hydrogen or hydrozone. Its properties as a powerful antiseptic are well known. A new suggestion as to its use is for the keeping clean and ready of glassware, such as irrigators, test-tubes, measures, etc., while not in use; one part to four or five of clean water is sufficient; some is left in the vessel until the latter is needed, when it is to be shaken, the solution thrown out, the container rinsed with clear water, giving assurance of its thorough cleanliness.—*The Polyclinic.*

The Absorbing Power of the Bladder.—It is announced from Professor v. Merring's clinic that comprehensive experiments with dogs have demonstrated that the rapidity depends upon the concentration to some extent, and that certain substances are much more readily absorbed than others. Seventy per cent. of a 1 per cent. solution of carbolic acid is absorbed in two hours, and the entire amount in fourteen. Almost 40 per cent. of a 1 per cent. solution of cocain is absorbed in three to five hours, showing the necessity of care in the use of these medicaments. Alcohol, boric acid and quinin were also readily absorbed, but morphin scarcely at all.—*Wien. klin. Woch.*, November 25.

Modern Management of Diphtheria and Croup Cases.—This is the title of a comprehensive lecture of Dr. Augustus Caille, professor of Pediatrics at the New York Post-Graduate School of Medicine. In speaking of fever he says, that the high temperature can be reduced by cold and luke-warm sponge and tub baths; to give antipyretic drugs regularly every two or three hours is very bad practice, but one or two doses in twenty-four hours, particularly at night, are serviceable. Among the drugs mentioned in this connection is lactophenin, which Dr. Caille recommends in 3 to 10 grain doses with ½ grain caffein. Quinin, he says, should never be given as an antipyretic in any but malarial disease.—*The Post-Graduate.*

Glandulen Tablets.—An English firm has produced tablets of glandulen, an animal product prepared in tablet form for medicinal use by Dr. Hofmann of Meeraue, Saxony. Glandulen is obtained from the bronchial glands of freshly killed sheep. Having been washed with alcohol, freed from fat, and dried *in vacuo* at a low temperature, the glands are reduced to powder, to which sugar of milk is added in such proportion that when compressed into tablets weighing 0.25 gram (3.5 grains), each tablet is equivalent to 0.25 gram (3.5 grains) of the fresh glandular substance. One tablet is given three times a day at first, the dose being gradually increased to five tablets three times daily. Glandulen is stated to have been tried in cases of tuberculosis of the lungs.

The Use of Scopolamin Among the Insane.—Dr. S. Tomasini has employed the hydrobromate and sulphate with equal results. They are injected subcutaneously in dose of from one two-hundred and fiftieth to one sixty-fourth of a grain. Sleep was readily induced, especially in women, in from two to three minutes. The injections are not painful, nor do they give rise to local reaction nor to general excitation. The pulse is regular, but more frequent. There is marked dilatation of the pupils. The sleep is quiet, resembling the physiologic. There are no disturbances nor unpleasant symptoms, as nausea. In maniacal cases and periodic insanity it is a remarkable sedative. Habituation is easily obtained and the dose must be rapidly increased.—*Riforma Medica.*

The Alleged Accidental Discovery of the Value of Hydrochloric Acid in Sciatica.—According to an article in the *Semaine Médicale*, a patient discovered for himself a successful treatment for sciatica, a disease from which he had suffered for several years. He had been under treatment in an Algerian hospital by means of hypodermic injections of salt and water, but without much success. After he had left he bethought him that perhaps the salt was not strong enough and that a stronger preparation of salt might be more successful. He therefore procured some "spirit of salt" (hydrochloric acid) and painted it on the skin, getting rid of his long-standing trouble in a few days. Having occasion shortly afterward to attend the hospital for some other affection, he confided in Dr. Bourlier, professor of therapeutics, how he had managed to get rid of his sciatica. This gentleman thought the plan worthy of trial and employed it in several cases with invariable success. He then told his son, Dr. Maurice Bourlier, who was house physician, and he treated a number of cases with great satisfaction to himself and to his patients. A thesis has recently been published on the subject by Dr. C. Gennatas of Montpelier, on the basis of a dozen cases of neuralgia of the sciatic nerve, all of which were completely relieved by this means. The procedure is simple enough. Half an ounce of strong hydrochloric acid is put in a small cup and a brush is dipped in it and applied over the painful part of the nerve, three or four coats being painted on. The limb is then enveloped in a cotton wool dressing. Of course the application causes a somewhat severe smarting sensation, but this is quite bearable. A few minutes afterward the skin becomes reddened and hot, and sometimes bullæ are formed which fill with fluid. These, even if they occur, disappear in two or three days. Usually the patient feels better even after a single sitting. The application can be repeated in from twenty-four to forty-eight hours, but not again for several days for fear of producing sloughs. Of course, too, where there are bullæ, they must be avoided in subsequent applications. No serious inconvenience is caused by the hydrochloric acid, such as was experienced when a similar procedure was attempted some years ago by Dr. Legroux with strong sulphuric acid, which was found to be liable to cause extensive sloughing of the skin. The twelve patients referred to were all reported as cured in from three to five sittings, extending over from a week to twenty-five days.

NEW INSTRUMENTS.

A NEW OPERATING TABLE.

BY J. F. BALDWIN, M.D., PROFESSOR OF GYNECOLOGY, OHIO MEDICAL UNIVERSITY, ETC.
COLUMBUS, OHIO.

Some years ago, not being satisfied with any of the operating tables in the market, I had one made of my own devising, which has worked so satisfactorily and been so highly spoken of by my gynecologic friends who have seen it in use, that I have concluded to bring it to the attention of the profession.

The ordinary operating table, if arranged to obtain the Trendelenburg position, is usually quite complicated. The more or less complicated machinery necessary to change the position of the patient requires for its manipulation the attention of the operator himself or of an assistant, and not infrequently there is an uncomfortable hitch in its working. A more serious objection, however, is that if the patient is at a comfortable height for the operator when in the horizontal position, the field of operation is carried completely out of reach when the patient is changed to the Trendelenburg; or if the position is comfortable when the patient is elevated, the reverse is the case when she is horizontal. I have been in a number of operating rooms where this difficulty was only overcome by the use of soap boxes for the operator and his assistants to stand upon.

My first table was made in wood. It was used by myself and also my colleagues, Drs. Reed and Means. After a trial of a couple of years, our experience resulted in finding a few points for improvement. Some two years ago, therefore, I had the table reconstructed in iron and glass, with the suggested improvements added. My friends, Drs. R. B. Hall of Cincinnati, and A. F. House of Cleveland, who had seen the table in its original form, at once ordered duplicates in its new form for their own use, and both have repeatedly expressed themselves as highly pleased with it. I soon became dissatisfied with the glass top and replaced it with metal plates. The latter have left nothing more to be desired.

The construction of the table is perfectly simple, as it is entirely without ratchet, cog, pinion, crank, or other complicated mechanism, while securing all the advantages found in the Boldt, Edebohls, Cleveland and similar patterns. The field of operation is at the same level whether the patient is horizontal or in the Trendelenburg position. It consists of a solid wrought iron frame supporting a hinged top, twenty by seventy-two inches, that can be shortened by uncoupling a foot section, reducing the length to fifty-four inches. Its usual height when level is thirty-six inches, although this can be changed to suit purchasers.

A principal feature of the table is the hinging of the top in such a manner that with a patient in the recumbent position, the whole is so evenly balanced that the anesthetist with a single hand may depress the head and elevate the hips into the Trendelenburg position.

Any degree of obliquity may be maintained by means of two slotted bars through which a screw rod and crank project, with such an adjustment that a slight turn of the latter will lock the table in any desired position. The main portion of the table top drains to the center into the receptacle placed upon a sliding plate resting in the table frame. That portion of the top upon which the head and neck of the patient rest is hinged in such a manner that when the table is depressed, by means of a curved upright this may be elevated so that the head rests in a horizontal plane. The foot piece is arranged with a

series of slots by means of which the lower limbs may be securely fastened during the progress of an operation.

By means of spring bolts and suitable slots, the foot piece may be elevated as shown in the figure, in which position the table is adapted for operations on the head and neck. With this arrangement almost any desired position may now be obtained with this table.

Two crutches are provided and arranged to be attached to either end of the table. By this means what is ordinarily termed the head of the table, may be employed for perineum and similar operations, in which case that end of the table may be slightly depressed, thus securing good drainage. Generally speaking this forms the best end of the table for gynecologic examinations, uterine, rectal and similar operations, because the table top projects beyond the frame, thus allowing more space for the knees of the operator if in a sitting posture. The

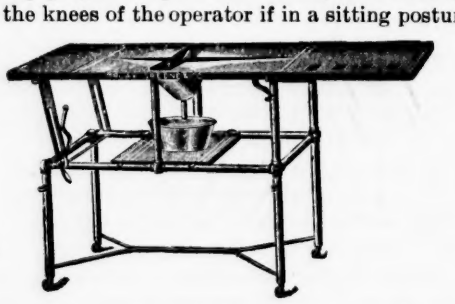


table is securely braced, strongly built and mounted on casters with rubber tires. It is finished in white enamel. Being without complicated mechanism there is little to get out of order. As it is simple in construction, it may easily be cleaned. Even the trough and spout are removable. The joints instead of being painted are either plated or bronzed, thus avoiding the danger to an enamel coat that might be caused by the friction in moving. The positions are simple, all being possible without removal of patient from the table.

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SATURDAY, JANUARY 8, 1898.

THE NEW NAVY IN ITS MEDICAL ASPECT.

The physician who would be considered a well-informed man in his community, can not be indifferent to public affairs, national and international, State and municipal, and a good citizen takes part in discussing the progress of the Nation among other nations. In the absence of war, the several countries of the civilized world are devoting themselves to the preparation for war, and the engrossing topic today, in our own land as in others, is the creation of what is called a new Navy, and naturally the medical aspect of this new establishment is that which particularly engages the medical man. Hence, the report of the Acting Chief of the Bureau of Medicine and Surgery to the Secretary of the Navy will be read by him to whom battle-ships, citadels, redoubts, superstructures, minor turrets and the like are unintelligible terms. It is gratifying to learn that the Naval Hospitals "are now placed on an equal footing with our leading civil establishments in all that pertains to modern medical and surgical requirements and the necessity of making suitable provision for the equipment of a Naval Hospital Corps becomes more urgent." It has long been known to the profession that the naval medical officer has had to labor without adequate support and that the Directors of Naval Hospitals have only been able to keep them in proper sanitary condition and clinical efficiency by retaining convalescents as nurses and attendants, thus vitiating the scientific value of their returns as to duration of illness and treatment; and commanding officers have complained loudly of this diversion of enlisted sailors and marines from their legitimate duties, yet the medical officer has had no alternative but to use the means at hand, employing the convalescent, in the absence of others, to care for his sick ship-mates, meanwhile clamoring for an independent corps of qualified attendants, similar to that which now forms part of the Army.

Another grievance of the medical officer of the old Navy, which appears to have been perpetuated in the new, was the location of the *sick-bay* or ship's hospital at the extreme forward end of the berth-deck at the water line, where it was exposed to the impact of the sea upon the bow when under way, to the odors of the paint- and oil-rooms opening into it, to the noise of chain-cables and hoisting-engines in port, and to the intrusion of others than the sick and their attendants. In the construction of the new Navy it is incredible that the Chief of the Medical Bureau has had no say as to the location of the hospital, nor has he been consulted as a sanitary expert about the proper air-space of apartments, and their habitableness. Ships have been constructed and their defects first come to his notice through the reports of individual medical officers ordered to them, and these are embraced in his own annual report to the Secretary of the Navy; and as was to be expected from the lack of professional expert advice at the outset, how lamentable has been the failure to provide adequately for the care of the sick and especially of those disabled in action!

Brief extracts from some of these reports from medical officers afloat may be interesting to professional readers:

Surgeon GEORGE P. BRADLEY, senior medical officer on board the first class battle-ship *Indiana*, says:

"The sick-bay is very small for the size of the vessel and number of men—not more than three persons, exclusive of the bay men, can be properly berthed in it. On the whole the facilities for the proper care of the sick or wounded are very inadequate, particularly as regards space, and call for extension in the construction of future ships. The very situation of the sick-bay, immediately abaft the *head* (latrine) is objectionable, depending on perfect tightness of a bulkhead for protection against the gravest dangers. If certain alterations were made, room for the sick-bay might be found on the main-deck within the superstructure. The sick-quarters used in time of peace, as well as the greater part of the crew-spaces, are entirely unavailable [for the care of the wounded in battle], being entirely unprotected by any armor—the only parts below the water are the orlop and platform decks at either end, which might be arranged for the reception and care of the wounded, are entirely cut off from the fighting parts, no communication through the bulkheads existing below. It is difficult to convey the wounded from the comparatively accessible regions, from others it would be practically impossible. In the four minor turrets the only means of egress is the small port in the side, through which the wounded man would have to be passed, as he could not remain inside, without interfering with the service of the guns. Looking at the ship as a whole, it is evident that the prevailing idea in her architecture was that of a fighting machine, where all other requirements were to be sacrificed so far as necessary to the installation of a very heavy battery with its requisite provision of ammunition and appurte-

nances. So far has this idea been carried that the usual living quarters for even the limited number of officers contemplated and actually detailed for her could not be provided without encroaching on space designed for other purposes. The space for ward room lavatory was encroached upon to furnish a room for a warrant officer. This room owing to its enclosed situation and especially to certain hot-water pipes passing into it is quite untenable in hot weather or a hot climate, as was shown during the first part of August when its average temperature was over 100 degrees F., and its occupant was obliged to pass his nights on deck."

Surgeon W. S. DIXON of the first-rate armored cruiser *Brooklyn* says:

"The sick-bay seems to be an unsatisfactory and ill-chosen place for the treatment of the sick. It is situated in the extreme forward portion of the berth deck and divided by an athwartship bulkhead into two parts. The forward section is so encumbered with stanchions (eight in number) for the support of the weights on the deck above that it will be possible to swing only a single cot at sea if the ship should roll very much. There is space for two additional cots but only when the ship is in harbor. The paint room is directly underneath this section, whose pungent disagreeable odors not only destroy largely the utility of the forward sick-bay but a passage-way must be kept for the painter and his assistants in the after sick-bay. It seems strange that in the construction of this great ship so little thought should have been given to the environments of the sick."

Surgeon C. A. SIEGFRIED on board the first-class battle-ship *Massachusetts* says:

"Those wounded in the turrets can not be taken out while in action, excepting possibly those from the base of 13-inch turrets, who can be treated in near-by passages. From the 8 inch turrets it would be very difficult to remove a badly wounded man, as the ports in the rear of the guns and the hatch below are small. No protected space exists below capable of holding more than a very few wounded men, and as the berth deck forward and aft of the casemate offers the only space for this purpose, transport of the wounded and injured to them could not be done until after battle. The importance of improving the medical department of our naval service is more and more apparent in view of the recent advances in the methods and rapidity of killing and wounding—hence it is advisable to institute a properly trained hospital organization."

Surgeon D. N. BERTOLETTE on board the first-rate protected cruiser *Minneapolis* reports:

"The transportation of wounded to the sick-bay is so difficult that in time of battle it would become impracticable. All transportation of the injured has to be left in the hands of persons not belonging to the surgeon's division. There is absolutely no protection for the injured in time of battle; the only protected places in the ship are in the space below the water line under the protective deck, access to which would be impossible with the ship in action, and under such circumstances the only resource will be to gather the wounded in places where they will least incommode the working of the battery and wait until after the action, and then those who are left, if any, may be attended to properly."

Surgeon S. H. DICKSON on board the second-class battle-ship *Texas* says:

"It is greatly to be deplored that no change was made in the location of the sick-bay during the reconstruction of the *Texas*. It still occupies the same noisy and contracted space in the bows of the ship, where the pitching motion is most severely felt. It lies between the forward torpedo-tube compartment and the chain-locker and serves a better purpose as a passage-way to the former and a store-room for two torpedoes, which take up one side, than as a hospital for the sick or a consulting room. But one cot can be swung in it with any degree of comfort to a patient and the battle-plates must frequently be shipped in the ports while at sea, thus excluding all natural light. There is hardly enough room in it to perform any surgical operation requiring anesthesia."

Surgeon P. A. LOVERING reports concerning the first-class battle-ship *Oregon:*

"While the sick-bay is not in the extreme bow of the ship, it is so far forward as to possess practically the same discomforts. The motion is great, and when going at full speed or breasting even a moderate head sea many tons of water are dashed upon the deck overhead. It is unfortunate that in our ships the sick-bays are so generally placed in the part of the vessel which is least fitted for that purpose. The sick-bay is situated in one of the most exposed and vulnerable parts of the ship, which forbids its use in time of action and consequently another station has been assigned to the surgeon. The means for conveying the wounded to this temporary hospital are not satisfactory. Even in the quiet of peace, when no confusion prevails, I have found the transportation of the injured to the sick-bay quite difficult, owing to the narrow doors and passages and many shafts which have to be avoided and which necessitate abrupt turns."

Surgeon E. H. GREEN attached to the cruiser *Marblehead* says:

"I would still urge the necessity of a suitable sick-bay. In a ship that is otherwise so comfortable and habitable the lack of a proper sick-bay strikes me as the one great defect."

In aggreable contrast to these reports, Surgeon W. R. DU BOSE reports respecting the double-turret monitor *Terror*, which is, however, properly an heir-loom from the old Navy.

"The provision for the care of the sick is admirable. The location in the superstructure is excellent. The surgeon's station in time of action will be in the wardroom, but a careful study of the conditions likely to obtain impresses me with the conviction that the medical officer must needs be here and there to extend professional assistance where needed. The transportation of wounded through narrow inaccessible turret-ports, along narrow-wing passages with sharp angular turns, can only be safely undertaken slowly and gently and not in the hurry and confusion of an engagement."

The concurrent testimony of medical officers, all of them from twenty-two to twenty-seven years in active service, as to the impossibility of transporting men and officers disabled during action to places of safety where they can receive necessary professional attention and the absence of a proper ship's hospital for their subsequent care on board the model man-of-war, whether it be a first or second class battle-ship, armored cruiser, protected cruiser or unprotected cruiser, makes the need apparent for the *ambulance ship*, which the former Chief of the Medical Bureau, Dr. TRYON, has so urgently and repeatedly advocated during his term of office—a vessel which shall be the common hospital for a fleet or squadron, to which all the injured, both victors and vanquished, shall be conveyed immediately upon the cessation of an engagement, if they shall not have already died of their wounds; for casualties in the future on board ships in action may be expected to be very serious and such as to require immediate attention by the medical officers.

Surgeon SIEGFRIED quotes from the account of one present that "the loss on board the Japanese cruiser *Matsushima*, in its late fight, from the explosion of one large shell alone counted up forty-nine wounded and fifty-three killed." But appalling epidemics and resultant monetary losses amounting to millions have not yet convinced our national legislators that it is the part of wisdom to protect the health of the people in the interior as on the sea-board by establishing a National Health Department which the AMERICAN MEDICAL ASSOCIATION, the American Public Health Association and all the State Boards of Health have united in recommending and urging; so, it is hardly probable that heed will be given to the unanimous voices of all the medical officers of the navy, or that the Chief of the Medical Bureau will be consulted as to medical requirements of the department of which he is the nominal head and exponent. Nevertheless, the medical profession at large can not be indifferent either to the establishment of a National Department of Health for the benefit of the whole country, or to the proper medical equipment of the new Navy, on which way depends its success in the event of hostilities.

THE PHYSIOLOGIC PSYCHOLOGY OF SMELLING.

It is a fact of some interest that while the special senses of vision and hearing have furnished some of the most striking acquisitions of modern physiology, the sense of smell has been left comparatively unstudied by investigators. The reason for this is not difficult to surmise; its organ has no mechanical peripheral apparatus that can bring its study into the domain of physics, nor do the variations of olfaction also follow physical laws like those of color or tone. The problems of its study fall therefore more into the domain of pure physiologic psychology, and the practical difficulties have been so great that few have attempted their solution. The close associations of the sense of smell with those of taste and general sensation, its easy sophistication and common, and indeed almost universal, impairment among civilized people, have added to the embarrassment and aided to discourage physiologic experimentation in this direction.

Within a very recent period it has been commonly taught that odors simultaneously sensed did not form a mixed odor, but were appreciated separately and consecutively. The mutual relations of odors and their shadings and graduations into each other have not been adequately marked, and the whole subject has been heretofore in a comparatively inchoate and unstudied condition. The ambitious but not especially scientific attempt of PIESSE to establish a gamut of odors is of course well known, but has not been taken seriously, and as will be seen recent investigation has shown that odor combinations follow more the laws of color than those of the tone accords. Thus it has been proved that mixtures of certain odors give rise to new and simple odors, though this was not recognized as an universal law. ZWAARDEMAKER in a memoir published within the last three years has attempted to classify odors and has made a series of nine classes, within some one of which he thinks any odor can be included. Combinations of odors he holds can be resolved into the elements belonging to these separate classes; when the sensation is sufficiently fatigued for one of these another is appreciated, and so on. In some cases he holds that odors do not blend but can be sensed at will by the experimenter.

One of the latest and most satisfactory studies of this subject is that of NAGEL, published early last year[1], in which he attempted to test compound odors without unduly bringing in the elements of fatigue to complicate the question. He criticizes the previous works on the subject and discusses at length ZWAARDEMAKER'S views, but does not offer any elaborated classification of his own, nor does he appear to have been satisfied himself as to what are the simple elementary odors, a position which, considering the difficulties and the necessarily more or less subjective nature of the study, is judicious rather than otherwise.

The conclusions he does arrive at are that any two odors may combine to form what is, at least for the moment, a new simple odor, the permanency of the latter being dependent on the fatigue of the organ for the components. The new smell is lasting according as this fatigueability for the original elements is equal or nearly so. With more than two components the conditions for permanency are improved. The compound odor has a resemblance, but not an identity with its components. A mixture thus made, though previously unknown to the observer, can be readily recognized as such when at least one of its component elements is previously known, and the more readily when the olfactory organ becomes fatigued so as to render any one of them more prominent than the others. Continued observation will therefore detect the odor as a mixture, if this was not possible at the first. If this is still difficult, if the fatigue for all the elements is still so nearly alike as to keep up the impression of a simple odor, special arrangements may have to be made to detect them, such as prior partial fatigue of the organ or PASSY'S method of successive dilutions.

On the whole the analogies of odor combinations are rather with those of colors than with those of sounds, according to NAGEL'S observations, which as the latest and apparently the best conceived method of study in this special line, may be taken as giving the latest scientific facts and views upon the subject. He does not, however, find the analogy quite complete in finding complementary odors that absolutely

[1] Zeitschrift für Psychologie und Physiologie der Sinnesorgane.

extinguish each other, though he finds several instances of close approach to this.

The human sense of smell is probably only an imperfect relic of what it once was in the earlier stages of evolution, but it still has its practical value, and whatever aids to complete our understanding of its physiology is a welcome acquisition. At present much is still obscure, and the field is yet an open one for further research.

RARE COMPLICATIONS OF TYPHOID FEVER.

While some medical men during the last few years have been largely interested in studying the value of recently introduced tests for the diagnosis of enteric fever, other clinicians have not been idle in studying this disease with particular reference to both its common and rare complications. More than twenty years ago one of the first and most valuable contributions to this subject was made by W. W. KEEN in his "Toner Lectures upon the Surgical Complications of Typhoid Fever," and the information therein contained, combined with valuable facts derived from more recent statistics, was utilized in the address which this well-known surgeon recently delivered before the Alumni Association of Harvard University. In most instances the surgical complications of typhoid fever have arisen from the infection of bones or glandular structures with the typhoid bacillus and usually with other infecting micro-organisms which have gained access to the body, and lodgement therein, chiefly because of the debilitated condition of the patient's system. Most of these surgical complications occur toward the end of the disease, or during convalescence from it, and naturally rarely require surgical interference until the febrile process has been arrested. There are other complications, however, of a medical character which have not been so carefully and exhaustively studied and these consist not only in grave disorders of the intestinal canal, but also in nervous and lymphatic manifestations, and further than this it is a noteworthy fact that typhoid fever is an infectious disease which in no way protects either during its course or immediately afterward the patient from other infections, so that other eruptive diseases may occur and various infectious processes may begin. An interesting complication of this kind, which seems to occur more frequently during the actual course of the disease than has hitherto been taught, is erysipelas, which, while it also quite frequently occurs during convalescence, seems to occur as a frequent complication during the progress of the disease itself. A number of interesting studies in regard to it have been published during the last few years, of which perhaps the most noteworthy is that of GERENTE, who collected from various sources 3,910 cases of typhoid fever, and among this number found that erysipelas had occurred as a complication of the acute stage of the disease, or its convalescence, in sixty-four instances, or in other words in the proportion of about one to every sixty-four cases. This observer also noted, in his Paris thesis for 1883-1884, that females are more frequently affected than males, which is a fact worthy of note when it is remembered that males are more exposed and more frequently suffer from typhoid fever. GERENTE also found that erysipelas as a rule made its appearance after the twenty-first day of the development of typhoid fever and it is also a point worthy of recollection that some epidemics of typhoid have seemed peculiarly liable to this complication, probably because the streptococcus of erysipelas was present with unusual virulence or else by reason of the fact that through lack of cleanliness of the mouth and nasal chambers solutions of continuity occurred in the skin and mucous membranes making an opening by which the streptococcus gained admission to the subcutaneous tissues. This is the more likely when it is remembered that a very large proportion of cases of erysipelas complicating typhoid fever are of the facial form. It is also evident from GERENTE'S study that erysipelas occurs more frequently in the grave adynamic forms of the disease, or in those in which the patient is exhausted by an unusually prolonged attack. He also believes that erysipelas usually produces a marked amelioration in the typhoid symptoms, provided that the inflammation is not situated about the face; for when facial erysipelas develops the mortality at once becomes very high, there having been sixteen deaths out of thirty-six cases of facial erysipelas which were collected by him. Probably it is only the phlegmonous forms of the disease which gravely imperil the patient's possibilities of convalescence, for in our experience the milder forms have certainly in no way seemed to delay it. Other cases have been reported by ARMIEUX, THIELMANN and BERTHOUD. In ARMIEUX'S case a soldier was affected at the end of his second week of typhoid fever by a purulent otorrhea and three weeks later by a facial erysipelas which began in the auditory canal; this was followed in a short time by an osteitis of the humerus and this in turn by death. In THIELMANN'S case there seems to be some doubt as to whether the patient was really suffering from typhoid fever, as before admission to the hospital he was unconscious and the greater portion of his face and forehead were covered with erysipelas. Recovery took place very gradually, but there seems to be reasonable doubt whether the case was not typhoid in type rather than due to real typhoid infection. In the instance reported by BERTHOUD there were marked meningeal symptoms during the attack of the typhoid fever which were followed by very tardy convalescence, the patient's general condition being very unsatisfactory. At this time the scrotum and inguinal region became greatly inflamed and erysipelatous, all the lower por-

tion of the abdomen being involved in the inflammation and, finally, a portion of the scrotum became necrotic, death occurring from exhaustion. The autopsy showed that the iliac and renal veins were involved in a suppurative inflammation, secondary to the erysipelas of the skin.

In addition to this case, FREUDENBERGER has recorded a case in which erysipelas appeared suddenly on both ears in the course of typhoid fever, and another instance of complicating facial erysipelas which was easily controlled and from which recovery took place. MARTINEZ has also reported a case of typhoid fever complicated by erysipelas of the foot and leg, but there seems to be grave doubt as to whether this was a true case of typhoid, or, in other words, whether the typhoid symptoms were not due to an erysipelatous infection. Finally, we find three cases reported by HARE and PATEK in which this complication occurred. In the first a well defined erysipelatous inflammation appeared over the left side of the face during convalescence from typhoid and seemed to be undoubtedly due to the fact that there was great soreness of the skin about the lips and buccal mucous membranes and as these became fissured and cracked they permitted infection. In the second case the erysipelas developed during the third week of typhoid about the bridge of the nose and finally extended over the entire face back to the ears and to the hair on the forehead. In the third case the erysipelas began as a complication during the third week of typhoid and was also facial in type. It is interesting to note that all three of these cases occurred in women, thereby supporting the statement of GERENTE, already quoted, that this disease as a complication is more frequent in this sex than in males. It is also an interesting point to note that recovery took place in each instance notwithstanding the fact that the disease was facial in type and that in no instance was the condition of the patient rendered much more grave by the development of the erysipelas. So far as we know there has been no careful study of post-typhoidal insanity since the publication of HUTCHINSON'S classic article in PEPPER'S "System of Medicine," which was published some thirteen years ago, but we know from HUTCHINSON'S paper, and from other contributions to medical literature, that such a sequence to typhoid fever is by no means uncommon. In rare instances, however, insanity or mania has developed early in the disease and not as a post-typhoidal manifestation and, in one case reported by MOTTET, mania developed so early in the attack that the patient was sent to an asylum before the true nature of his disease was discovered, and HENROT and BUCQUOY have seen the disease begin with the delirium of grandeur. Other cases of pretyphoidal mania have also been reported by MURCHISON and by DALY. In both of these cases the mania developed as early as the fourth or fifth day of the disease.

HIGHER MEDICAL EDUCATION IN CHICAGO.

A very important move in the interest of higher medical education was accomplished in Chicago this week by the affiliation of Rush Medical College with the University of Chicago, whereby the College becomes one of the institutions connected with this great University's system.

The College took steps last month, under its terms of agreement with Lake Forest University, to sever the connection held with that institution, in order that the new arrangement may be consummated June 1. The members of the active faculty who were trustees have resigned, and their places will be filled by trustees to be selected by the University.

It is understood that after this year higher entrance examinations will be exacted, and additional requirements for the degree in medicine insisted upon. Moreover, it is understood that the entrance examination will be conducted by an examiner from the academic department of the University.

In our judgment no step has been taken by this flourishing College more far-reaching in its character, nor none fraught with greater consequences to the whole medical profession of the Northwest. Naturally, this may not be immediate, but it is nevertheless certain.

President HARPER announced the new affiliation at the last convocation of the faculties of the University. It is understood that this is the preliminary step toward uniting the College to the University as its medical department. This consummation can not be finally effected until the College shall be freed from debt.

President HARPER said:

It will be of interest to the faculties of the university to learn that at its meeting Dec. 29 the university trustees, in response to a petition from the trustees of Rush Medical College, voted to enter into affiliation with that college. The date proposed for the consummation of the relationship is June 1, 1898, but it is specifically stipulated that the affiliation shall be dependent upon three conditions.

The first condition is that the board of trustees of Rush Medical College shall be reorganized. At the present time a great majority of the trustees are physicians, who are at the same time members of the faculty. This is acknowledged to be an unfortunate arrangement. The new trustees will be representative business men of the city of Chicago, who have no pecuniary interest in the income of the college.

The second condition provided that the requirements for admission to the college shall gradually be increased, until in the autumn of 1902, only those who have completed the freshman and sophomore years of regular college work shall be admitted. This proposition, which had already been adopted by the present trustees of Rush Medical College, is a most significant step in the history of medical education.

The third condition relates to the present debt of the college, which amounts to $71,000. It is provided that affiliation shall not take place until the debt has been paid.

It will be the aim of the new trustees, with such assistance as the university may furnish, to develop the work of the medical college along university lines. In the history of Rush

Medical College it has always been found that with every increased requirement the number of students has increased. It is not expected, therefore, that the number of students will be diminished by the application of the new requirements for admission. It is confidently believed that college men from all parts of the country will be glad to enter an institution to which only college men are admitted.

The history of Rush Medical College during fifty years is one of the most interesting and splendid of any that has been enacted in the educational work of the West and Northwest. Its name today in medical circles is held in high honor. The degrees will be those of Rush Medical College, not those of the university.

The proposed affiliation, however, will at present give to the university a general supervision of the educational policy of the institution. The trustees of Rush Medical College will continue to be an entirely separate corporation. The trustees of the University of Chicago can assume no financial responsibility in connection with Rush Medical College.

This affiliation is a part of the general policy of the university in accordance with which already many institutions stand in close relations with the university. Whether Rush Medical College will ever become the medical college of the university time will show.

It is important, however, to note that even with this affiliation of Rush Medical College the university remains without a medical school of its own. The field is therefore open for some friend of humanity to devote one or two millions of dollars for the endowment of a great medical school, the income of which shall be devoted to special research, with which under any circumstances Rush Medical College would work in the closest co-operation. With the moral assistance thus gained the medical college will place itself in a position which, under ordinary circumstances, it could not otherwise have occupied. In thus lending its aid to the medical college the university performs in part the function for which it was established. In entering into this new relationship with a faculty composed of eighty members, the faculties of the university will join heartily in the wish that even more may be accomplished than it expected.

PATRIOTIC PHILADELPHIA.

Philadelphia, which has long held the pennant as the most faithful and loyal friend of the AMERICAN MEDICAL ASSOCIATION (if any superlative may properly be applied to the many faithful and loyal friends of the ASSOCIATION), has given a new proof of her affection and respect, as appears from the following letter from Dr. HOBART A. HARE, lately Chairman of the Committee of Arrangements:

To the Editor:—At the meeting of the Board of Trustees of the ASSOCIATION held on the last day of the Semi-Centennial Meeting at Philadelphia in June, 1897, it was voted at my request, as Chairman of the Committee of Arrangements, that the sum of $1,000 be appropriated for the purpose of aiding the Committee in meeting its expenses. The Committee has now settled all its accounts and is glad to report that it is able to return to the Treasurer of the ASSOCIATION the amount appropriated. Acting under instruction from it I have this day sent a check for $1,000 to Dr. H. P. Newman. The meeting was held therefore without cost to the ASSOCIATION.

Yours truly, H. A. HARE.

WRITE TO US for a copy of Department of Public Health Bill.

CORRESPONDENCE.

Appendicitis.

RICHMOND, IND., Dec. 20, 1897.

To the Editor:—I desire to endorse the subject matter on "Appendicitis" coming from Dr. Sterman of Evansville, Ind., in reference to "alarming mortality" following operative measures for this accident. I call it accident because it is only recently that the furore of operating in this class of cases has culminated. So that operation is advised too often, which produces the alarming mortality to which the Doctor refers. He refers to some cases, and cases of so-called "appendicitis" occur in many localities. In illustration of cases which may or may not be operated on, are those operated on too soon and those too late, with an intermediate class of cases not operated on at all, viz., those which recover; also those which die because *operation* was *postponed* till too late.

I visited five cases during the past summer, two for the purpose of operation. The first was dying when I arrived and there was no operation. The duration after a relapse was eleven days. Postmortem was made the day after death and showed a case of appendicitis, perforation of tube, infiltration into peritoneal cavity, general peritonitis, effusion of serum and pus with an effort at organized lymph, and an effort at arrest or cure at that point. Evidences of general peritoneal inflammation and consequent results were present. There was a time, had it been determined, when an operation might have been successful.

Another case was that of a woman 65 years old, and was well marked as to signs, symptoms, etc. McBurney's point was clearly defined but under careful and skilful management by her physician she recovered without operation, which was my advice, as I went with a view to operate.

The third case recovered without operation, under my own management. The symptoms were: Agonizing pain; McBurney's point distinct. Absolute quiet and anodynes arrested the disease in five days.

In another case a physician of this city was called in consultation. The diagnosis was appendicitis. Symptoms: Localized pain; McBurney's point made out; pain and localized soreness; vomiting; bowels obstructed. Under hot fomentations and opiates the patient recovered in a week with no operation.

The fifth case, Mrs. B., was a well marked case. She was a large, fleshy woman, a hearty eater in health with irregular habits of eating. She was attacked with severe pain in the right iliac fossa, low down. McBurney's point of pain and soreness was well marked. Abdominal pain was diffused. Tympanites was marked in general. The limb of the right side was drawn up to relieve the pain and soreness. Under a careful, yet somewhat protracted treatment, with the most absolute quiet, she slowly recovered without operation, and yet in the consultation I had advised an operation the next morning if no improvement occurred. She has had no relapse.

It so happens that I had been making a careful study of cases reported and what authorities have said (I mean operators) for several years back, and I have had occasion to postmortem such cases as have died and have found "appendicular trouble" which requires a careful diagnosis to distinguish from other troubles which occur in this region of the body. The differential diagnosis must or ought to be "absolute," using the writer's word, before an operation is undertaken, and then, too, at a period when complications are not sufficient to contraindicate it. Hence, I accept the three first conclusions as laid down by the writer, and also agree to the two last propositions, as these cases will in some degree prove, viz.: 1. That too many surgeons (those who are teachers, *i. e.*, surgical operators) operate too much, that is, they popularize an operation,

which oftentimes in my judgment had better not be made, because patients do more or less slowly convalesce, finally recover and remain well after such attacks. 2. I have seen (in now nearly fifty years' practice) many such cases which we would now classify as "appendicitis," recover without an operation.

Finally, many lives have been lost by an operation made when convalescence had been established and any operative procedure was surely contra-indicated.

Thus I am glad to record my experience as sustaining the experience as recorded by the writer referred to and, furthermore, to suggest that the trend of modern surgical opinion will bear criticism and close examination; when, standing in the presence of a human life threatened with death and appealing to the surgeon for aid, the surgeon must be conservative, honest, backed with a comprehensive knowledge of the symptoms and facts and one who will not yield to temptation; hence, judicial in his mental make-up.

There are three more cases which might be added to this list, one recovering and two dying; one refusing operation under consultation and the second being too late for an operation, which was desired; and postmortem revealed in both appendicitis with peritoneal complications.

Summary.—Eight cases, five recovering and three dying from complications rendering it useless to operate; postmortem in three cases to verify diagnosis. In these cases the percentage of mortality is 37.5; the percentage of recovery 62.5, without operation. "Talamon (Fr.) admits that 90 per cent. recover without operation, taking all forms of the disease." Then why such urgency to operate?

R. E. HAUGHTON, M.D.

Diabetes Mellitus.

MILTON, DEL., Dec. 28, 1897.

To the Editor:—In the JOURNAL of Dec. 18, 1897, you gave us quite an elaborate article on "Diabetes Mellitus," for which the profession owes you many thanks. I have often thought while the scientists were almost turning the world over to unearth a remedy for the cure of consumption, diphtheria, etc., how little has been done about this dread disease. There are reasons for it, and one is they have never satisfactorily solved the why and wherefore, the primary cause; but why has there not been more investigation? For, if there is one disease more loathsome than another it must be diabetes. It deserves our most thoughtful and serious consideration. The authors give us but a faint idea of the disease or how or whence it comes. They speak of sugar appearing in the urine after eating certain kinds of fo , or it may appear during many diseases. This we all know and it occurs in every physician's practice; but the primary cause and to get down to the bottom rock, the starting place, there has been but little light thrown upon this great question. Theory amounts to but little when you have to face that dread disease; we get lots of that out of the lectures of professors in our colleges and their writings, but when reduced to practice are of but little worth; but the cause of this trouble is what we are after and how to remedy it. Speculation won't do; no one can treat disease successfully without knowing something of the cause and how to remove it. As matters stand, we are like a blind man groping his way in a strange room where nothing is sure to him. Such, I fear, is the case with many of us, we are too prone to guess at what we don't very well understand and leave the result of our mistakes many times to what is called providential visitations. While it has been considered that the amylaceous and starchy foods had much to do with the diabetic condition, yet we have never known a demonstration of the fact, as we have said before. We often see sugar in the urine after eating certain kinds of food, but that does not go to say that such is the primary cause. And in our treatment we have always taken the reverse and administered acid and alkalies as an offset, making an attempt to neutralize the sugar; but always making a miserable failure.

Let us hear from you again.

JAMES A. HOPKINS, M.D.

Railroad Rates and the Denver Meeting.

TECUMSEH, MICH., Dec. 28, 1897.

To the Editor:—Permit me to correct some of the erroneous impressions which my article of December 11 appears to have made upon the mind of your correspondent of Sioux Falls, S. D., and which find their way into the JOURNAL of Dec. 25, 1897.

In the first place the members of the AMERICAN MEDICAL ASSOCIATION are not mendicants, and therefore do not solicit free passes to the Denver meeting, nor to any other meeting; neither can the writer ascertain that the members of this ASSOCIATION ever had free passes to any of their meetings, at least within the last quarter of a century. Secondly, the members of the ASSOCIATION simply require of the railroads that they give the members a similar rebate which the roads have already conferred upon members of conventions previously mentioned by the writer, and nothing more. This plan, if adopted by the railroads, would meet the approbation of "the average country doctor," as well as the average city doctor, who as a rule has neither money nor time to throw away for the benefit of the public, although he frequently does it, even for the benefit of opulent corporations.

The following paragraph from your correspondent mentioned above is merely quoted in order to show its absurdity: "The railroad company finally kept tab and discovered that in one year free transportation to the amount of about $60,000 had been called for and used to go to other places than the ASSOCIATION, over and above that actually used in good faith." This statement when applied to the members of the AMERICAN MEDICAL ASSOCIATION is all hocus pocus, without the slightest foundation of facts.

In conclusion, allow me to suggest that hereafter, the Committee on Transportation fix the place of meeting of the ASSOCIATION after they have succeeded in obtaining fair railroad rates to and from that point. Respectfully yours,

J. F. JENKINS, M.D.

License in Germany.

TOLEDO, OHIO, Jan. 3, 1898.

To the Editor:—In Dr. Blech's reply in the last issue of the JOURNAL, he says: An American graduate can matriculate at a German university. That has not been denied, but he is not admitted to the State examination unless fulfilling the requirements as stated in my explanation. He says: The gymnasium embraces a curriculum of seven years only.

The classes are *Sexta*, *Quinta*, *Quarta*, *Tertia B*, *Tertia A*, *Secunda B*, *Secunda A*, *Prima B*, *Prima A*, with one year's course in each equals nine years if one is passed every year, which is not always the case. Age for admission to *Sexta* is 10 years.

As to *Gewerbefreiheit*, those are *the quacks*, and have no sheepskin of any kind, while the question under consideration is the *full fledged license to practice*.

These few remarks to show that Dr. Blech's corrections are incorrect, and that there is nothing to change in my primary statements. But now I can not help but pick up one expression found in Dr. Blech's last print, which I hope slipped under his pen without giving it the necessary premeditation. He says, and claims to quote me in doing so, that Johns Hopkins, Harvard, etc., are not considered equivalent to a German University. I most positively must take exception to this

statement, and this with some self-satisfaction to me as a foreign graduate in opposition to a graduate from Barnes Medical College at St. Louis ("Polk's Directory"). Every learned European and German, not even necessarily a physician, knows and admits that *some* of the American schools are fully equal to the European standard, that a large number of American physicians, living and dead, are found among the leaders in the profession, and full credit is given to what Americans have done for the advancement of science. The question of equivalence, however, does not come up at all in legislating for the regulation of licensed practice of medicine; compare the State of New York, etc.

B. BECKER, M.D.

An Interesting Case.

SIOUX FALLS, S. DAK., Dec. 27, 1897.

To the Editor:—Christmas eve two men engaged in a quarrel in a saloon in this city over a bill. They went out into the street to continue the quarrel. After some words, the larger of the two, who was a large powerful man, struck the other a severe blow in the mouth. Instead of falling backward as would have been expected, the man hit fell forward and his enemy struck him another blow as he went down. He immediately became unconscious, and though his heart was beating when medical aid reached him, respiration had ceased and he was shortly pronounced dead.

All sorts of conjectures were indulged in as to the probable cause of death, it not being thought probable that two such blows as were given could kill a man. Some attributed it to heart disease, others thought his neck must have been broken. The autopsy disclosed the fact that the man when struck had a large quid of tobacco in his mouth and had probably at the instant of receiving the blow taken a sudden and deep inspiration, drawing the tobacco down deep into the larger bronchi, completely occluding them, causing his almost instant death.

The coroner's jury found the man who struck the blows guilty of manslaughter in the second degree. We have heard of tobacco causing death, but never before in just this way.

A. H. TUFTS, M.D.

Medical Courtesy.

CLARKSBURG, W. VA., Dec. 21, 1897.

To the Editor:—In case a physician who is in good standing in his State medical society moves his location to a town in a neighboring county of the same State, in accordance with social or professional ethics, who is expected to first extend courtesies in the way of friendly calls, the new-comer or his older established professional brethren?

Very respectfully, R. A. H., M.D.

ANSWER: Where a physician moves into a neighborhood, courtesy demands that his brother practitioners should call on him within a reasonable time and give him the right hand of fellowship.

Texas Medical Practice Laws.

CHICAGO, Dec. 28, 1897.

To the Editor:—Kindly advise me in our JOURNAL as to laws and regulations of practicing medicine in the State of Texas.

"DOCTOR."

ANSWER: A license is issued after examination by a District Board of Medical Examiners. Diplomas confer no right to practice. *Vide* the JOURNAL, Vol. 22, p. 355.

SOCIETY NEWS.

Therapeutic Society.—At a meeting held at the National Medical College, July 29, 1897, to organize "The Therapeutic Society of the District of Columbia," there were present, Drs. H. H. Barker, G. R. L. Cole, C. T. Caldwell, J. T. Kelley, Jr., L. Kolopinski, D. O. Leech, J. S. McLain, G. C. Ober, W. M. Sprigg, M. F. Thompson, J. T. Wintern. The following officers were elected: L. Kolopinski, president; J. T. Winter, first vice-president; W. M. Sprigg, second vice-president; J. T. Kelley, recording secretary; G. C. Ober, corresponding secretary; J. S. McLain, treasurer. Article II of the constitution says, "The object of the Society shall be the study and advancement of medical and surgical therapeutics in all of the special branches of practical medicine. The Society meets in one of the rooms of the National Medical College, on the second Saturday of each month. The active membership is limited to fifty, and any member of the Medical Association of the District of Columbia is eligible."

J. THOMAS KELLEY, Recording Secretary.

St. Louis Laryngological and Otological Society.—On December 27 the St. Louis Laryngological and Otological Society was formed, composed of those physicians of St. Louis who limit their practice to the treatment of diseases of the nose, throat and ear. Dr. J. C. Mulhall was elected president; Dr. J. B. Shapleigh, vice-president; Dr. F. M. Rumbold, secretary, and Dr. A. S. Barnes, Jr., treasurer; for the year 1898. Meetings will be held monthly, and it is expected that the scientific programs furnished will be highly interesting and instructive. While the membership is limited, the privilege of inviting professional friends is reserved to each member.

BOOK NOTICES.

Transactions of the Medical Society of New Jersey. Cloth. Pages 347. 1897.

This volume covers the one hundred and thirty-first annual meeting held at Atlantic City, N. J., June 22 and 23, 1897. Besides society data it contains the following papers: "The Value of Antitoxin as a Remedial Agent . . Against Diphtheria;" "Present Status of the Serum Treatment of Diphtheria;" "Headaches; Auto-intoxication a Factor;" "A Criticism of Modified Milk and of Modern Dairy Methods;" "Some Important Points in . . . Acute Lobar Pneumonia;" "Scarlet Fever Reproduced by Inoculation . . . ;" "Progress in State Medicine and Hygiene;" "Aphorisms on Medico-Legal Testimony;" "Progress in Bacteriology During the Past Year;" "Progress of Ophthalmology and Otology;" "Account of a Patient . . . Who Swallowed Numerous Indigestible Articles with Suicidal Intent."

Transactions of the Medical Society of New Jersey. Cloth. Pages 453. 1896.

This volume contains full proceedings of the one hundred and thirtieth annual meeting held at Asbury Park, N. J., June 23 and 24, 1896. The paper and press work of the volume are a credit to the society, the volume being a companion volume to that for 1897. The contents comprises reports, minutes, etc., and a number of valuable papers.

The Action of the Health Department in Relation to Pulmonary Tuberculosis and the Scope and Purpose of the Measures Recently Adopted for its Prevention. Paper. Pages 70. 1897.

This is a report of the Board of Health of New York City, made to Mayor Strong, and contains much valuable data concerning pulmonary tuberculosis. Several maps of New York wards add to its value.

Proceedings of the Ninth Annual Session of the Association of American Anatomists. Paper. Illustrated. Pages, 65. Washington, 1897.

The volume contains the proceedings of the annual meeting held in Washington, D. C., May 4-6, 1897, including papers presented at the meeting and a number of full page half-tones illustrating the papers.

Biennial Report of the Department of Health of the City of Chicago being for the years 1895 and 1896. Chicago. 1897.

This report is one of the most valuable ever published by the Health Department. Dr. Reynolds in his letter of trans-

mittal says, "The general excellence of the work of the department is due in a large measure to Dr. F. W. Reilly, who was appointed assistant Commissioner of Health by the undersigned in January 1895, and most wisely retained during the last administration and reappointed by the present."

The contents of the volume includes the Reports of the Divisions and Bureaus of the Department, contagious diseases, diphtheria, the anginas of 1896, diagnosis of diphtheria, special medical sanitary inspection, inspection of public schools, work of the disinfecting corps, statistics, tables, circulars, etc., of the contagious disease division, circulars of the department, hospital and ambulance system of Chicago, auxiliary medical corps, report of the municipal laboratory, relation of the medical profession to the water supply, regulation in the practice of midwifery, report of smoke division, report of the City Statistician, report of the attorney for department of health, financial statement by the secretary, roster of the department, vital statistics, mortality statistics.

There is an excellent statement of the new isolation hospital and the ambulance service. Taking it all together the report covers one of the most interesting periods in the history of the department, and may well be studied by the progressive sanitarian.

The Care and Feeding of Children. A catechism for the use of mothers and children's nurses, by L. EMMETT HOLT, M.D. Second edition. D. Appleton & Co., 1897. New York.

This catechism is one of the most valuable of its kind and if placed in the hands of every person that has the care of young children it would be an immense benefit to a great many of the coming generation.

Manual of Pathology Including Bacteriology, the Technique of Postmortems and Method of Pathologic Researches, by W. M. LATE CORLIN, M.D., being the second edition of the author's lectures on pathology re-written and enlarged. 268 illustrations, many of which are original. Philadelphia: P. Blakiston, Son & Co. 1897. Pages 638; price $3.00.

The work is divided into three parts, the first part is devoted entirely to the technique of laboratory examinations; part two, general pathology including bacteriology; third part, special pathology.

It is an admirable condensation of the vast subject, which, in view of the several special works devoted to each section, is extremely hard to compress in one volume.

A work of this kind must necessarily be largely compilation, and yet due credit should be given where the language of another author is used; especially is it desirable in the matter of statistical and comparative tables.

We notice for instance on page 211 of this book a table which is headed "diagnostic features of sarcoma and carcinoma," the first half of which is taken bodily from Woodhead's Third Edition, page 607.

Questions are appended to each of the chapters to aid the instructor in class recitations.

Syllabus of Laboratory Work in Materia Medica and Therapeutics in Use at Rush Medical College. By DANIEL R. BROWER, A.M., M.D., Professor Mental Diseases, Materia Medica and Therapeutics; J. A. PATTON, B.S., M.D.; JAMES C. GILL, M.D.; GEORGE W. HALL, A.M., M.D.; C. A. WADE. Pages 286. Chicago: The W. T. Keener Company, 1897.

This syllabus fairly illustrates the change that has taken place in the teaching of materia medica and therapeutics. In the old days, not more than a quarter of a century ago, the professor stood before his class for an hour and gave an address more or less profound, more or less eloquent, according to the abilities and mood of the lecturer. He held up a bottle containing a specimen of the drug or preparation, and as a special favor occasionally passed it around for inspection with the bottle tightly corked and the label duly numbered and recorded. This cursory inspection was supposed to be sufficient to inform the student fully of all that was necessary for him to know. Now it is different; the student must handle the drugs; must be able to test the qualities from a chemic and as well from a pharmaceutic standpoint. Not only that but he must record his results. For this purpose each student is separately provided with the necessary chemicals and apparatus according to the list duly set forth in the syllabus; the chapters to which are as follows: 1. Desk invoice. 2. General laboratory rules. 3. General instructions for tests. 4. Weights and measures. 5. Prescriptions. 6. Materia exercises on the various official drugs and preparations (190 pages of these exercises). 7. Therapeutics, exercises on electricity, massage, enemata, lavage, hydrotherapy, counter irritation, pneumotherapy, dietaries. Truly, the medical graduate of today has no holiday task to earn his medical degree.

The Psychical Correlation of Religious Emotion and Sexual Desire. By JAMES WEIR, JR., M.D. Second edition, pp. 338. Louisville: Courier-Journal Job Printing Company, 1897.

This book contains separate chapters on: 1. The origin of religious feelings. 2. Phallic worship. 3. Psychical correlation of religious emotion and sexual desire. 4. Psychical problems, viz.: "Psychology of hypnotism, virginity and effemination, borderland and crankdom, the methods of the rioting striker an evidence of degeneration, genius and degeneration, prophecy and insanity, occultism, etc., effect of female suffrage on posterity, animism and the resurrection, suicide in the United States. Is it the beginning of the end?"

Masters of Medicine. A Series of Monographs, edited by ERNEST HART, D.C.L., Editor of the *British Medical Journal*. Each volume with photogravure frontispiece. Large crown octavo, cloth. 1. John Hunter; Man of Science and Surgeon (1728–1793). By Stephen Paget, with introduction by Sir James Paget. Pp. 273, $1.25. 2. William Harvey. By D'Arcy Power, F.S.A., F.R.C.S. Eng., Surgeon to the Victoria Hospital for Children, Chelsea. Pp. xii-283, $1.25. New York: Longmans, Green & Co., publishers, 91 and 95 Fifth Avenue.

In the long fight against disease, especially its causes and for prevention, which has so far resulted in increasing the average length of human life to a considerable degree, the lives of those masters who have led in this warfare can not fail to be of great interest.

The names selected by the distinguished editor, Ernest Hart, are John Hunter, William Harvey, Edward Jenner, Sir James Simpson, Hermann von Helmholtz, William Stokes, Claude Bernard, Sir Benjamin Brodie, Thomas Sydenham, Vesalius.

The first two of these volumes are before us, and although much has been written of John Hunter and William Harvey, yet we must say that these volumes add very much to the general stock of knowledge concerning them, and to general literature has added a couple of biographies as entertaining as they are generally useful.

These lives are destined to become English classics and as such read by every physician who desires to be familiar with the progress of medicine and surgery among the English speaking race.

Transactions of the American Orthopedic Association, Eleventh Meeting, held at Washington, D. C., May 4, 5 and 6, 1897. Pp. 296.

This report is ably edited and contains the proceedings of the last annual meeting and the papers read at the meeting by the members of this society.

The work is well illustrated and handsomely printed. The historic address of the president, Dr. Samuel Ketch of New York, is one of the features in the volume of interest to the general profession. The book compares very favorably with its predecessors and is very creditable to the Association.

What a Young Man Ought to Know. By SYLVANUS STALL, D.D. Philadelphia: Vir Publishing Co. 1897. Price $1.

This book is to be commended from a moral and from a sanitary standpoint. One is apt to be prejudiced without reason

against books of this class and we confess a weakness of that sort, but on perusal we not only find nothing from which to dissent, but very much to commend. The chapters on marriage are specially to be commended.

NECROLOGY.

WILLIAM E. WENTWORTH, M.D., aged 24 years and an attending physician of a sanitarium, died from typhoid fever at the Hospital in New Rochelle, New York., Dec. 29, 1897. He was born in Rochester, N. H., where his father is a wealthy farmer.

HENRY PARKE CUSTIS WILSON, M.D., University of Maryland, Baltimore, 1851, died in Baltimore, Md., December 27, aged 70 years. He was a medical writer, inventor of surgical devices and vice-president of the American Gynecological Society. As one of the founders of the Hospital for Women of Maryland he became widely known for his energy and identification with nearly all the hospitals and charitable institutions in Baltimore. He was also a member of the Maryland Academy of Sciences, of the Baltimore Academy of Medicine and of other professional bodies.

ERASTUS C. COY, M.D., University of Vermont, Burlington, 1861, died after a short illness, aged 65 years. He had practiced for twenty-five years at Turner's Falls, Mass., where he died, having joined the Massachusetts Medical Society in 1870, and at a later period the Massachusetts Medico-Legal Society. A widow, a son and a daughter survive him.

DEATHS IN THE PROFESSION ABROAD.—Joachim Voss, M.D., professor of anatomy and medical jurisprudence in the University of Christiana, president and founder of the Association of Norwegian Medical Practitioners and one of the first who performed ovariotomy in Norway, aged 82 years.——Prof. Victor Hüter, for many years lecturer on gynecology in the University of Marburg.——Nikolai Kleinenberg, M.D., professor of comparative anatomy in the University of Palermo, aged 57 years.——M. A. Olivet, M.D., professor of psychiatry in the University of Geneva and author of numerous publications on subjects relating to mental diseases, aged 76 years.——José M. Astigueta, professor in the Medical Faculty of Buenos Ayres, member of the legislature, minister of public instruction, superintendent of the asistencia publica, etc.——Alex. Bykow, M.D., Warsaw, director of the Med.-Chir. Academy.——Braulio Saenz, M.D., a prominent physician and surgeon in Havana, stricken at the operating table.

JAMES F. ARMSTRONG, M. D., Cleveland, Ohio, December 7. Dr. Armstrong was surgeon of the One Hundred and Fiftieth Regiment, Ohio Volunteer Infantry during the war and was later surgeon of the United States Marine Hospital.——J. L. F. Burdich, M.D., Winooski, Vt., December 11, aged 73 years.——Cornelius N. Dorsat, M.D., Montgomery, Ala., December 7, aged 44 years.——William P. Hogue, M.D., Charleston, W. Va., December 7, aged 77 years.——George C. Hoitt, M.D., Manchester, N. H., December 9, aged 62 years.——M. V. B. Johnson, M.D., Sioux City, Iowa, December 9, aged 55 years.——A. W. Peurifoy, M.D., Hankinsville, Ga., December 10, aged 69 years.——L. S. Sprague, M.D., Williamson, N. Y., aged 78 years.——E. C. Karner, M.D., Mill River, Mass., December 21.——J. W. Mix, M.D., Byron, Ill., December 28, aged 42 years.

COL. JAMES COOPER MCKEE, a retired United States army surgeon, dropped dead at Butler, Pa., December 11, from heart failure. He was born in Butler in 1830 and gaduated from the Medical University of Pennsylvania in 1852, commencing practice at Altoona, where he remained four years. In 1858 he was commissioned assistant surgeon in the army and assigned to duty in the West, where he was engaged with different commands until the breaking out of the war. At the second Bull Run he served as assistant medical director of the army. At the battle of Antietam he was made assistant medical purveyor of the army. He afterward took charge of a hospital at Baltimore, and was next sent to organize a general hospital at Pittsburg. In 1863 Dr. McKee was promoted to the rank of captain and placed in charge of the Lincoln United States Hospital at Washington, D. C., where he remained until the close of the war. During this period 25,000 sick and wounded men passed under his attention. After serving as chief medical officer at Santa Fé, N. M., Fort Wadsworth, N. Y. and Vancouver Barracks, W. T., he was retired in 1891 for injuries received in the line of duty, with the rank of lieutenant colonel, returning to his home at Butler.

JOHN WATERMAN HAMILTON, M.D., Willoughby University, Ohio, 1846, relative of ex-Governor Hamilton of Illinois, and widely known in Ohio, died in Columbus, his home, January 1, aged 72 years. He was a member of the AMERICAN MEDICAL ASSOCIATION and as well of the Ohio State and Central Ohio Medical Societies. His name appears in the list of delegates to the Ninth International Medical Congress, which convened in Washington, D. C., in 1887. He was one of the older surgeons of Columbus and one of its ablest men. He was a descendant of Dr. Wm. Hamilton of Edinburgh, Scotland, who settled in Maryland in 1700 and was the founder of the family in Maryland. Dr. Wm. Hamilton was an able physician and was called in consultation by Dr. Craig in Washington s last illness.

ELTON JOHN SHEROW, M.D., College of Physicians and Surgeons, New York, 1890, died in New York City January 1, aged 24 years. He was an earnest laboratory student, but appears to have overtasked his energies.

PUBLIC HEALTH.

A Quarantine Convention.—The following papers, which have been forwarded to the JOURNAL by Dr. W. H. Sanders of Mobile, Ala., are of interest and self-explanatory. The Doctor says: "The idea is to educate both ourselves and the public, in order that we may reach correct conclusions both as to the theory and practice of quarantine, as justified by the genius and principles of our systems of government, Federal and State. . . . . The medical papers are intended to be written, not in technical language, such as would be appropriate before a medical body, but in plain and perspicuous language, such as is adapted to a popular audience. . . . The idea is, further, that each paper shall close by a clear and succinct statement of such propositions as the argument employed seems to justify, which propositions can be submitted to the vote of the convention for adoption, modification or rejection."

THE STATE BOARD OF HEALTH.

MONTGOMERY, ALA., Dec. 7, 1897.

Governor JOSEPH F. JOHNSTON.

Dear Sir:—The recent introduction of yellow fever into one of our Gulf States, and its spread therefrom to several others of them, has strongly emphasized the wisdom of making an effort to devise some more efficient measures than have heretofore existed for the prevention of a similar disaster in the future.

The time seems ripe for such an effort. Our people are deeply and universally aroused on the subject, and justly so, for no subject could be more vitally connected with their social, sanitary, commercial and industrial interests. The magnitude of the questions involved points out the necessity of adopting the wisest course in order to reach the best possible results.

To me it is clear that our first need is light—all the light we can possibly procure. To obtain this, I propose a Quarantine Convention of the South Atlantic and Gulf States. Their geographical position gives them an interest in the subject far above that of any or all of the other States, and their recent experience eminently fits them for dealing with it intelligently and wisely. Their interests are sufficiently homogeneous, and

their exposure to the infection sufficiently great and uniform as to closely unite them in a friendly and earnest effort to formulate systems of protection that shall be founded upon principles of equity and justice and shall at the same time be efficient and harmonious.

At the proposed convention delegates should represent every business and profession, with a view of making a scientific and exhaustive study of both the theory and practice of quarantine. To eminent lawyers should be assigned themes intended to develop and clearly set forth the legal propositions upon which all systems for the protection of the public health should be built. To merchants should be assigned commercial themes, to doctors scientific ones, to railroad and steamboat officials those bearing upon transportation, to editors those appertaining to public policy, to representatives of the postal service those affecting the mails, and to all other classes subjects appropriate to their several departments of business.

With carefully prepared papers on appropriate themes, belonging to each of these departments, together with the discussions that would grow out of them a flood of light would be thrown on the subject of quarantine. In a word, the idea is to make the proposed convention broadly educational, and at the same time to furnish an opportunity for cultivating that spirit of harmony and mutual confidence which will be so conducive to the most judicious legislation.

I deprecate the haste with which many of our people are forming opinions upon the subject of quarantine, and fear they are doing so without due consideration. That our system of quarantine urgently needs to be reformed is freely conceded, but let us by all means search out and apply the best remedies. I know of no other way of finding these remedies than by studying the subject according to the plan briefly indicated.

I have but imperfectly sketched the beneficial results that would flow from a convention of the kind suggested, but I feel sure you will readily see the wide scope of usefulness it would fulfil. I suggest Mobile as the place, and about the first of February next as the time for holding the meeting. Mobile is centrally located with reference to the territory to be represented, and lies on the coast that is most directly interested in securing protection. The hospitality of her people is proverbial, and I feel safe in saying that a body of men meeting there for the purpose indicated would receive hearty and cordial welcome.

May I ask your moral support and co-operation in promoting my objects, feeling sanguine as I do that much may be thereby achieved for the good of the entire country. With distinguished consideration, very respectfully yours,

[Signed] W. H. Sanders, M.D.,
State Health Officer.

State of Alabama. Executive Department. Office of the Governor.

Montgomery, Ala., Dec. 8, 1897.

Dr. W. H. Sanders, State Health Officer.

Dear Sir:—I have just received your favor laying before me your suggestions in regard to calling a Quarantine Convention, composed of delegates representing all classes and pursuits affected by quarantine restrictions, and to consider the origin and most effective means of stamping out epidemics.

I beg to say that I heartily concur with your suggestions. The time seems most opportune for our wisest physicians, lawyers, merchants, farmers and others affected to give thoughtful utterance to sound views. I am sure that such a convention will be a great educational institution; that it will be able to illumine many dark spots, and enable us in the future to enact such wise and wholesome regulations as will properly protect the lives and property of our people. I beg to say that you shall have my hearty co-operation in the matter proposed and that I shall do everything consistent with my position to have Alabama and all the States affected, represented by its best thought in all respect to the vital interests that will be there considered.

Yours respectfully,

[Signed] Jos. F. Johnston, Governor.

Preliminary Program.—Submitted by W. H. Sanders, M.D., State Health Officer of Alabama.

1. Quarantine with reference to international rights and interests. 2. Federal and State powers as to quarantine. 3. State and National quarantine as affecting commerce. 4. Quarantine as it affects personal rights. 5. Sanitary inspectors of foreign ports. What is being and can be done in this direction. Sanitary conditions of foreign ports that menace us most, and what can be done to improve them. 6. Policing the sea along the South Atlantic and Gulf Coast to prevent the introduction of contagious and infectious diseases. What is being and can be done? 7. National disinfecting stations for ships, where located, how operated, under what rules, with what results and whether others are needed. 8. State maritime disinfecting stations, how many, where located, how operated, under what rules and with what results. 9. Medical inspectors of south Atlantic and Gulf seaports and coast towns to discover first case or cases of infectious or contagious diseases, how best to provide for. 10. What steps should be taken in dealing with first case or cases of infectious or contagious diseases that may reach our shores. 11. State and local quarantines, how best to adjust their relations. 12. Depopulation of infected cities, how to be accomplished and to what points may refugees go. 13. Quarantine diseases, what are they and how should they be dealt with? 14. Infection, how conveyed and periods of incubation of infectious diseases. Disinfection, when needed and how applied? 15. The mails and quarantine, how practically to deal with them when proper authority has declared that they should be disinfected. 16. Management of railroad trains during an epidemic of yellow fever, from a railroad standpoint. 17. Classification of freights as to their liability of conveying infection. 18. What may be done to check the spread and to exterminate yellow fever after it has become prevalent in a city? 19. Boards of health, of whom should they be composed and how should they be appointed? To whom should the practical administration of quarantine be committed? 20. Practical difficulties in diagnosing yellow fever. 21. Interstate quarantine from a constitutional, commercial and sanitary pint of view. 22. Experiences of a quarantine officer in the recent epidemic. 23. National quarantine. 24. A National Bureau of Public Health. 25. The relation of the press to epidemics and quarantine. 26. Quarantine from a moral standpoint. 27. Sins and absurdities committed in the name of quarantine in the recent epidemic. 28. Introduction of yellow fever into the country in the past; from what places introduced and how.

Typhoid Fever Epidemic in New Jersey—A serious epidemic of fever has befallen Paterson, N. J. It began at an orphan asylum and thence spread to other parts of the city. About seventy cases are known to have existed. It is the belief of those who have investigated the matter, that the cases at the institution and in various private families originated from the milk supplied by a certain dairyman, in whose family there had been three cases of fever. These patients had been sick for a month or more, with what was called "remittent fever," and their discharges found their way into the water that was used for washing milk cans and other appurtenances of the dairy. Among the other towns where typohid fever prevails to a greater or less extent are Passaic, Arlington and Kearney. A boycott against New Jersey milk has resulted, not only in New York City, but in certain of the large cities of the former State. Thousands of quarts of milk are being rejected every day, and are sent back to the shipping point, compelling the farmers to rush them off to the local creameries, which are now glutted and refuse to take any more, so that the daily product on many of the farms is a dead loss. Many dairymen who personally fought in its effort to secure legislation that would have averted such a calamity are now willing to co-operate in securing some stringent laws that will prevent a recurrence. The fact that they are losing thousands of dollars a day has brought them to their senses, and as many of them are innocently suffering they are willing that some laws should be obtained that will bring about an immediate supervision of dairies by the boards of health. Upward of fifty epidemics with a long list of fatalities have been caused in New Jersey in recent years by infected milk, and invariably by fevers in the families of those handling and dispensing the same to a large number of consumers. Until the epidemic has become alarming, there is no official investigation, and then it is found that some dairyman is selling milk with a bad case of fever in his house, with the water that he uses to cleanse his dairy utensils infected. The authorities then try to stop him from dispensing any more milk, but the damage has been done, as the long list of the sick and the dead will show. A stringent law is needed which will compel local boards of health to exercise the same precau-

tion as the board of health in the cities and towns. There is no attempt made at reporting infectious diseases, for the reason that the township board of health would take no action if they were reported. If the physician who finds fever in a country farmhouse, where the principal business of the occupants is preparing milk for the market, would report the case to the local board of health as soon as the fever makes its appearance, and the township board of health would report to the State Board of Health, that creamery would be seized at once and communication shut off with the consumers of the milk.

Volunteer Organizations for the Detection of Plumbing Defects.—For several years Edinburgh has had its unofficial system for the expert sanitary examination of dwellings. There is now in New York City, a somewhat similar undertaking, under the name of the Building and Sanitary Inspection Company, and they "offer their services to those who live in houses, for the discovery and correction of causes of unhealthfulness in the appointments and environment of the dwelling." A few years ago one of the most aristocratic apartment houses in the neighborhood of Central Park experienced an invasion of diphtheria, and though there were several victims in different rooms, the evidence was nearly conclusive, that it had originated in the house; and one bereaved father called in a sanitary engineer, in spite of the protests of the indignant owner who told of how much money he had spent on his ornamental bathtubs and nickel-plated pipes. The expert found that the ventilating pipe that should have gone out at the roof, and extended above it, left off at the lower side of the ceiling of the upper story and was there replaced by a painted cylinder of wood, which passed up through the storage attic. The noisome exhalations could do nothing else than diffuse themselves throughout the house, and the outraged inmates took the matter to court, where there was a preliminary hearing; and rumor had it that the murderous owner of the building paid fabulous sums to "buy off" his tenants, and immediately had the most faultless of plumbing put in under the direction and inspection of a competent sanitary engineer. This could not recall to life the dead; and with variations the above is a story that is repeated again and again every year, and tenants and owners are very active after the mischief is done. Had the people who suffered from this landlord's cupidity caused an examination to be made before they rented their rooms, a wholly different result would have been seen. Is it possible that careful fathers who are good business men in other matters, can have been inveigled into attempting to live in houses where eighty in a hundred are defective in the vital point of healthfulness. They were not inveigled, they were simply satisfied with their own judgment, or took on trust the assurances of agents or owners. Many houses were carefully plumbed according to the lights of the time when they were built; but in some the plumbing is worn out, and when a replacement is suggested there is a distinct painful thrill in the pocket nerve of the owner, and he fights it off as long as possible; and where he suspects that there should be a thorough overhauling, but the prospective tenant does not not push his inquiries, he soothes his conscience by the thought that "the sanitary condition of a house is, after all, a matter of concern only to the people who live in it." But if neglect is proven and taken to the courts, he wishes he had not waited to be forced to do right. There has arisen in some quarters a tendency to ridicule the idea that the germs of disease are to be found in the emanation from defective pipes, and though there is, no doubt, a degree of high health and robust constitution that can resist their action, there are thousands who suffer from what for lack of a more definite classification, they call "malaria."

"Light from Dust."—A plant at Shoreditch, London, in which Lord Kelvin is interested, has recently been opened, the object of which is to destroy waste and at the same time utilize it for the production of electricity for lighting purposes. It is probably the first of its kind on anything more than an experimental scale; and this has been done in a large borough of 130,000 persons, mostly belonging to the working class. The steam requirements of the electric lighting station, great though they be, must be regarded of secondary importance in comparison to the hygienic manipulation of the refuse compared to the doubly expensive method of sending it away by rail or barge to be utilized for raising some low-lying land on which in a few years houses would be built. Not only will the cost of getting rid of the dust be materially reduced to the parishioners, but the districts where it was "shot" will benefit largely by its absence. Medical men in localities where town refuse has been deposited have been impressed that its presence is a determining factor in the production of diphtheria. From a health point of view the introduction of electric lighting and electric power can only be regarded as a distinct advance. It is unnecessary, in this year of all others, to dilate on the benefit of the electric light over other methods of lighting, but in Shoreditch special arrangements have been made such as in the introduction of the "penny-in-slot" meter principle, and otherwise, to bring the light within the reach of the small shopkeeper and householder. Further, the use of electric energy is certain to be largely appreciated in the numerous small factories and domestic workshops with which the district abounds. It is not necessary here to enter into a description of the various works comprised in the undertaking, but reference must be made to one or two of the novel features which have here been combined. By the system of feed thermal storage which is brought into operation for the first time, the steam generated during the daytime in the boilers is passed into a thermal storage cylinder, where it is mixed with a small quantity of cold water from the feed-pumps, the proportions being such that, when the evening approaches, the cylinder is full of water at the temperature and pressure of the steam required by the engines. The cylinder is then shut off from the feed pumps and connected to the boilers, which in their turn are connected direct to the engines; hence, when the boilers require feed-water, they are supplied with it from the cylinder at such a temperature that the fuel which is then being burnt has merely to furnish to the water in the boiler the heat sufficient to overcome the latent heat of evaporation at the required pressure. The result of this arrangement is that the boilers are able to evaporate about one-third more steam than they would be able to evaporate were they connected directly with the water-mains; and, moreover, the importance of the thermal storage cylinder is further enhanced by the fact that it acts as a water purifier. The six boilers are all fired with the waste gases from two destructor cells, one on each side of the boiler. The products of combustion from the destructor cells are led under the boiler tubes immediately above the level of the fire-bars, the latter being fitted in the boiler together with fire-doors, in the same manner as if the boiler were fired with coal, irrespective of the dust destructor cells. This grate is provided for the express purpose of enabling the boilers to be fired by coal alternatively or simultaneously with the absorption of heat from the waste gases of the destructor cells passing through the boilers. This arrangement fulfils a two-fold object. 1. The provisions of the secondary fire before referred to, which is in the most desirable position for further heating the destructor gases immediately they enter under the boiler, should that operation be requisite, and having further advantage that the heat so produced is ultimately so completely absorbed by the boiler, and thus turned into profitable use. 2. The arrangement adds to the steam-raising power of the boilers when the heat of the destructor gases is not sufficient to produce all the steam required, or when the destructor cells attached to a particular boiler are out of order, to enable the boiler to be entirely fired by coal or coke. It has been found, however, that the heat produced by the destruction of the "dust" is sufficient without the addition of any coal. There are twelve cells in all in the destructor house, which measures eighty feet square. In place of the more usual inclined road and tipping platform considerable saving is effected, both in space required and in horse-

flesh, by the introduction of a series of electric lifts and motor cars for revising and distributing the refuse throughout the cells. One man is thus able to keep the whole twelve cells charged at regular intervals, and the refuse is never left to ferment or heat on hot brickwork or ironwork, and so prove a nuisance to the neighborhood. A like result from the gases which might escape is prevented by the use of fans which ventilate the building and at the same time drive the air through the furnaces. A connection has also been made from the adjoining sewer to the intake of one fan, which constitutes an experimental effort to ventilate the sewer by passing the gases abstracted therefrom through the fires, and thus rendering them innocuous.—*Sanitary Journal.*

MISCELLANY.

Prince Bismarck.—A recent cable dispatch states that Prince Bismarck is suffering from some form of dropsy, and has recently had his feet tapped.

Erratum.—In the JOURNAL of December 4, page 1184, second column, line 8, the name of the author of the article on rheumatism should read Dr. Edmund L. Gros instead of Geos.

Parke, Davis and Co., have issued a handsome little brochure, the "Lofoten Islands and their principal product," in which the pictures of this group of islands are beautiful and of general interest.

The Russian Census.—The revised returns of the Russian census gives the total population of that country at 129,000,000. This makes Russia third in rank among nations, China coming first with an estimated population of 490,000,000 and the British Empire next with 208,000,000.

A Book by Dr. Outten.—Dr. Warren B. Outten, Chief Surgeon of the Missouri Pacific Railway, has written a book: "Man's Inherited Martyrdom—A Fitful Study of Degeneration." The work is of the greatest interest and is sure of a favorable reception. It will be printed as a serial in the *Tri-State Medical Journal and Practitioner*, of St. Louis, which has the exclusive right to the publication.

The Passing of the Family Doctor.—The London *Lancet* has lately expressed its regret at the signs of the wasting prestige and influence of the medical profession. That looks as if the embarrassments that beset physicians in New York were operating in London also. There seems to be some reason to anticipate a time when New York families will contract with a syndicate of physicians, comprising a complete set of the necessary specialists for the supervision of the family health at a fixed annual price.—E. S. Martin in *Harper's Weekly*, Dec. 25.

Missed Everything Except Vaccination.—An old Georgia darkey, with his arm in a sling, was talking to another on a West End car yesterday. "Yes, suh!" he said with emphasis. "I gone up now, fur sho'! You see dis arm in de sling, don't you?" "Yes." "Well, suh," the old man continued by way of explanation, "I'll be 80 years old next harvest; I done see lots er trouble in my day, but by de grace er God I miss de Ku-Klux, I miss de Viglance Committee, I miss de White caps, en I miss de Regulators, but now in my old age, please God, waxinators kotched en cut me."—*Atlanta Constitution.*

Ocular Hemorrhages in Young Subjects and in Adults.—Abadie, in the *Soc. d'Ophtal. de Paris*, lays stress on two symptoms which he thinks are of importance as bearing on the causation of intra-ocular hemorrhages in young subjects: 1. The epistaxis which often precedes or accompanies them. 2. A noticeable diminution in the number of the red corpuscles in the blood. These seem to indicate that the hemorrhagic process depends on an alteration in the blood. The results of treatment directed to improving its quality have been found by Abadie to be most satisfactory. He strongly recommends a glass of sulphuric lemonade, extract of cinchona 1 gram, and perchlorid of iron 10 to 20 drops, to be taken daily. To favor absorption of the effusion he applies the artificial leech to the temple. Hemorrhages associated with choroido-retinitis are not to be confused with the above, and require a mercurial treatment.—*British Medical Journal.*

Antivivisection Bill.—The following authoritative statement from Senator Gallinger appears in the *Congressional Record*. "Upon solicitation from several Senators saying that they were receiving letters from constituents, protesting against the passage of the Bill, I allowed it to drift along and did not ask for the consideration of it. On May 13, 1897, the Bill was again reported and is on the calendar. . . At an early date I shall move to take up that Bill, which is Senate Bill 1063, Calendar No. 136. I trust that when I ask the consideration of the Bill it may not be objected to, but that that matter which to my mind is extremely important, and a controverted matter, I will say, on the part of physicians, scientists and humanitarians, may have a fair discussion and that we may have a vote of the Senate deciding whether or not that Bill shall pass this body."

Reading Through Opaque Substances.—Professor Grasset reports a curious experience with a subject who was able to read the contents of a letter enclosed in silver paper inside a sealed envelope at 300 meters distant. No one in the town knew the contents of the letter, which had been sent especially for the test. The affair was reported to the Academy of Sciences of Montpelier, and the still sealed letter presented, which was opened and found intact, although a pin had been passed through it and buried in the seal. The contents were an unfamiliar French verse which was read correctly, and a Russian, German and Greek word which the subject asserted she could not read, concluding with the correct date and signature. A committee has been appointed to go to Narbonne and make still further tests of Dr. Ferroul's "subject" in the interest of science.—*Semaine Méd.*, No. 56.

Causes of Poverty.—In Europe paupers are defined to be those who receive aid from government or charitable funds. The proportion of paupers to the whole population is highest in England, 28 per 1,000. In Scotland it is 24, in Ireland 23, in Holland 20, in Italy 10, in Austria 9, in France 8 and in Germany 7. There is no similar division made officially in the United States, and, taking the country through, the proportion here is less probably than 2 per 1,000. When it comes, however, to the causes of poverty, the American statisticians are, so to speak, right in line with what some persons would call their conjectures, but what they describe as their conclusions. Thus, of 100 cases of poverty, 11 per cent. are chargeable to drink in excess, 21.3 per cent. to what the statisticians call "misconduct," a rather vague designation for unwise or reprehensible acts; 28 5 per cent. to lack of work or inadequate pay for work done, or insufficient, half time employment; and most of the remainder to "misfortune."—*New York Sun.*

The Restoral of Flogging as a Legal Punishment Recommended.—The *Lancet* is more than half right in its advice to have flogging made a part of the punishment for toughs who throw stones at railway trains. The custom of throwing stones at trains is far too common and in addition to its being almost impossible to arrest those who do such things, the penalty provided by law is far too light. A peculiarly sad accident arising from this habit was reported in the *Daily Press* on October 19 as follows: "Ben Hitchen, a well-known express driver on the North Western Railway, lies at Crewe unconscious. He had charge of the Scotch Express to Carlisle, and when passing under Hartford bridge, going at great speed, a stone hurled with much violence from the bridge struck him over the eye, inflicting a fearful wound. Erysipelas has set in, and his condition is precarious." Drivers of express trains are exposed to quite enough dangers from the nature of their ordinary work without having to undergo such risk as the one mentioned above. If the scoundrel who threw the stone is

ever caught, though we are much afraid he will not be, he deserves the soundest flogging that a criminal ever had. In a case like this one not only is the driver's life imperiled, but the lives of all those in the train. We sincerely hope that the law may be amended so as to make it legal that anyone who either throws any missile at a train, whether he hit it or not, or places an obstacle in the way of a train should be well flogged or birched in addition to a term of imprisoment.

Degenerate Females at the Guldensuppe Murder Trials, New York.—During the revolting recital of testimony in the Thorn murder trial there were numerous women present who seemed to delight in listening to the shocking, disgusting details of the butchering of Guldensuppe. It is difficult to believe that any woman not morally and physically a degenerate would seek to be present at such a place during such a scene. Yet at Thorn's trial some of these creatures fought with each other in the corridors in their desire to crowd into the court room. In the cause of common decency, in the name of womanhood, which these curious females dishonor, the Bench should use its utmost endeavors to keep out the unwomanly women of morbid appetites. Under shelter of constitutional rights, never intended to be used for base purposes, they may seek to gain admittance, but the judges should do all in their power to drive them out of the trial room. And wardens of prisons should close the door against them when, later, these queer human beings in petticoats come with their floral offerings and their sickly sentimentality to visit convicted murderers in their cells. —*New York Herald.*

Water-Supply and Irrigation Papers.—The following numbers of the series of Water-Supply and Irrigation Papers have been printed and can now be had on application, or until the supply of each is exhausted. Requests specifying certain papers and stating reasons for asking for them are given prompt attention, but it is impossible to comply with general demands for all of the series indiscriminately: 1. Pumping Water for Irrigation, by Herbert M. Wilson, 1896, 8o, 57 pp. 2. Irrigation near Phœnix, Arizona, by Arthur P. Davis, 1897, 8o, 97 pp. 3. Sewage Irrigation, by George W. Rafter, 1897, 8o, 100 pp. 4. A Reconnaissance in Southeastern Washington, by Israel Cook Russell, 1897, 8o, 97 pages. 5. Irrigation Practice on the Great Plains, by Elias Branson Cowgill, 1897, 8o, 39 pp. 6. Underground Waters of Southwestern Kansas, by Erasmus Haworth, 1897, 8o, 65 pp. 6. Seepage Waters of Northern Utah, by Samuel Fortier, 1897, 8o, 50 pp. 8. Windmills for Irrigation, by E. C. Murphy, 1897, 8o, 49 pp. 9. Irrigation near Greeley, Colo., by David Boyd, 1897, 8o, 90 pp. 10. Irrigation in Mesilla Valley, N. M., by F. C. Barker (*in preparation*). (Other papers on related subjects.) F. H. NEWELL, Hydrographer in Charge, Washington, D. C., Oct. 15, 1897.

Rush Medical College Changes.—Prof. Edward L. Holmes, president of Rush Medical College, has resigned. A meeting of the faculty was held January 4 for the purpose of considering the resignation of Dr. Holmes and for passing on the question of affiliation with the University of Chicago. On the question of joining with the University every member present voted in the affirmative. The resignation of Dr. Holmes was also accepted. The retiring president of Rush Medical College, Dr. Edward L. Holmes, will be 70 years of age February 11, and his resignation is to take effect at that time. More than a year ago he announced that when he was 70 years of age he would retire from the presidency to make room for some younger man. He asserts that his age is the only reason for resigning. He was the first physician in Chicago to limit his practice to diseases of the eye and ear. He was the founder of the Illinois Eye and Ear Dispensary at the close of the war. He was prompted to do so by the large number of returning soldiers who were suffering from affections of the eye resulting from the hardships of the field. He became a professor in Rush Medical College in 1860 and in 1883 was made its president. When the Presbyterian Hospital was founded in the latter year he was one of the doctors effectively interested in the undertaking. For more than a year Dr. Holmes has been in feeble health. Rush Medical College lacks only three years of being as old as incorporated Chicago. It was founded in 1836. It has the oldest charter of any school in the State. In 1843 the school was at 49 Clark Street and it had twenty-two students. The next year it was removed to Dearborn Avenue and Indiana Street. The home of the school was destroyed in the great fire of 1871 and five years later a structure was erected for it on the site of the buildings it now occupies at Harrison and Wood Streets.

Detroit.

AT THE regular meeting of the Wayne County Medical Society, December 16, Dr. C. D. Aaron presented a paper entitled, "The Diagnostic Value of Trans-illumination of the Stomach." The author exhibited a number of life-size diagrams representing the healthy stomach in its normal position as it appears when the interior is illuminated by the gastrodiaphane and several pathologic conditions of the organ, such as dilatation, carcinoma of the pylorus and of the body of the stomach, gastroptosis, etc. The author then gave a description of and exhibited the instrument known as the gastrodiaphane, and illustrated its practical uses by an actual introduction before the Society into a patient's stomach, showing by trans-illumination the dilated condition of the organ. In the discussion that followed the author stated that the patient's condition was undoubtedly due to repeated stomach washings and strongly condemned its general practice by the profession.

THE DETROIT MEDICAL AND LIBRARY ASSOCIATION at its regular meeting, December 20, listened to an interesting paper by Dr. A. N. Collins, entitled "How Shall We Treat Threatened Puerperal Convulsions?" in which the doctor said that a thorough knowledge of the cause or causes of puerperal convulsions would greatly aid in prophylaxis and treatment. The Doctor took up the pathology of the subject, giving the different theories advanced as to the cause of puerperal convulsions. He said: "I believe a majority of us hold the broad idea that the poisons developed in the tissue metabolism of physiologic cell activity imperfectly eliminated by the excretory organs, accumulate in the system, from which we get eclampsia or convulsions." In those dying from the disease, he continued, the kidneys are found in all conditions from the normal to acute degenerations, dilatation of the pelves and ureters, and also chronic nephritis. It has been found that the cerebral arteries have been involved even in young women; or again, another theory is that a toxic substance is produced in some unknown way which causes contraction of the arteries, arterial degeneration, acute degeneration of the kidneys and acute nephritis and that this poison is the cause of the convulsions and the cerebral and vascular phenomena. In all theories a quantitative and qualitative examination of the urine is our guide to the condition of our patient and ought to tell us when we need to interfere in some way to save our patient. The Doctor then gave the table as published by Prutz, from which he summed up that steamings, sweatings, morphia, veratrum viride, bromids, bleedings and other remedies were of little avail and showed conclusively that prophylaxis was what was needed. The Doctor further said that those cases in whose urine traces of albumin are found and who are near full term, are not to be considered serious, but those who show albumin in the early part of their pregnancies, and especially when the albumin increases in quantity and the urine decreases, are grave. The Doctor also placed considerable stress upon "flashes of light," irritability of the vascular system, rapid and wiry pulse together with an increasing anemia. For this latter condition the Doctor recommended first an abundance of water, then a milk diet, saline cathartics, acetate of potash, digitalis, hot

baths and proper hygienic surroundings, efforts being made to carry the same beyond the seventh month; then if the conditions were not better, to evacuate the uterus. The Doctor then told how he would bring on labor: First give a bichlorid douche, then a sterilized catheter should be passed into the womb between the uterine wall and amniotic sac, tamponed and left. The Doctor tries to prevent the sac from rupturing, as he thinks this materially aids in dilating the os uteri and makes the labor more regular and natural. If the convulsions should begin, then the sac should be ruptured to relieve pressure. The Doctor then gave the record of two cases in which both mother and children were saved.

HEALTH REPORT for the week ending December 24: Births, 42; deaths, 46. Contagious diseases: Diphtheria, 10; scarlet fever, 35; 1 death from diphtheria; none from scarlet fever.

Denver.

THE WESTERN SURGICAL AND GYNECOLOGICAL ASSOCIATION.—The seventh annual meeting of the association held in this city on December 29 was a success in every respect. The members from outside of Denver who represented the States of Missouri, Kansas, Iowa, Indiana, Utah and Nebraska were delighted to find the brightest of suns over their heads from dawn until evening twilight, and they had no use for the heavy overcoats with which they had provided themselves. Five sessions were held, morning, afternoon and evening on the first day, and morning and afternoon on the second day. The attendance at all sessions was good. Almost all physicians residing in Denver and in the neighboring cities availed themselves of the opportunity and attended one or more sessions. Especially large was the attendance in the evening of the first day when the members of the Denver and Arapahoe Medical Society courteously omitting their stated meeting have joined the session in a body. In the evening of the second day a banquet was tendered the visitors by the Denver physicians, and seventy Æsculapians sat to the table and whiled away the time in intercourse and discourse until a late hour. Dr. H. G. Wetherill responded to the toast "our guests." The guests in parting did not bid adieu to the Denverians, but *au-revoir* at the meeting of the AMERICAN MEDICAL ASSOCIATION in June, 1898.

STATISTICS OF MEDICAL LIBRARIES.—At the last stated meeting of the Denver and Arapahoe Medical Society it was resolved that the pamphlet entitled "How Every City may Secure a Medical Library," written by the secretary of the Society, Dr. C. D. Spivak, should be mailed to every county medical society in the United States. The committee appointed for that purpose have issued a circular, which may be obtained from Dr. C. D. Spivak, Denver. The plan as outlined in Dr. Spivak's pamphlet is a very simple one. Suppose there is a city in which, say, thirty or forty Æsculapians dwell in peace and harmony. Every one of them has a library which is composed of books, periodicals, reference works, etc. There are however no two private libraries in which all the books are alike. Now, in order to make all the books available to each and every physician residing in that community, it is only necessary to take the largest private library in the city as a foundation and prepare a careful card catalogue of all the books therein. Then go over all the other private libraries and add such books as are not found in the first. Thus, when all the libraries are gone over, and *all* the books are entered, the catalogue is placed in the public library or in any other place for reference. Of course the card bears the name of the owner, of whom one may obtain the book. As the circular states, this plan was adopted here in Denver and works with great success.

THE COLORADO MEDICAL LIBRARY ASSOCIATION.—The fourth number of the *Monthly Bulletin* of the Colorado Medical Library Association is out. As far as bibliography of medical libraries is concerned, this bulletin is a unique production, probably the first and the only one ever published in the United States. In the succeeding issues, the editor promises to devote considerable space to the general question of medical libraries in the United States. The bulletin will be sent gratis to all medical libraries by addressing Dr. Henry Sewall, 23 18th Avenue, Denver, Colo.

DENVER CLINICAL AND PATHOLOGICAL SOCIETY.—The December meeting of the Society was held in the offices of Drs. Cover, Fleming and Leroy. Dr. Wetherill reported the use of a double drainage tube devised by himself for draining and flushing pelvic abscesses through the vault of the vagina. Dr. Parkhill reported and exhibited a case of ununited fracture of the tibia and patella in which his clamp was used with complete success. Dr. Block spoke of the absolute necessity of asepsis in the removal of foreign bodies from the cornea. He also reported the use of the drug called phiosenaminie for use in softening and absorbing corneal scars and all adventitious tissue in any part of the body. Dr. Waxham exhibited a polypus which had completely obstructed one nasal cavity and caused considerable distress to the patient. He also reported a case of croup in an adult 40 years old. Dr. Hershey reported a case of hemoptysis occurring periodically without any relation to menstruation. The attacks are usually preceded by the enlargement of the spleen and liver. Examination of the blood negative. Dr. Lyman reported a case and exhibited specimen, wherein a tumor appeared under the annular ligament of the right wrist following a sprain two years ago. Upon operation the tumor was found to contain a gelatinous fluid, rice bodies and a piece of tendon.

ST. ANTHONY'S HOSPITAL.—At the annual meeting of the executive committee of the staff of the hospital the following staff was appointed for the year: Surgery: Attending, Drs. John Boice, Leonard Freeman and J. W. Neil. Medicine: Consulting, Drs. E. P. Hershey, P. D. Rothwell, C. P. Burns; consulting, Drs. John Elsner, J. N. Hall, R. B. Freeman and C. P. Conroy. Gynecology and abdominal surgery: Attending, Drs. C. K. Fleming, T. H. Hawkins. Neurology: Attending, Drs. J. W. Rothwell, S. D. Hopkins. Pediatrics: Attending, Drs. C. F. Shallenberger, J. W. Ryan. Ophthalmology and otology: Attending, Drs. R. E. Lemond, D. H. Coover. Obstetrics: Consultant, Dr. W. H. Buchtel; attendant, Drs. T. M. Burns, C. P. Van Zont. Laryngology: Attendant, Dr. Robert Levy. Dermatology: Drs. W. H. Davis and J. M. Blaine.

THE HEALTH OF THE CITY.—The total number of deaths for the month of November was 137, representing a rate of 10.28 per 1,000 per year; there were thirty less than in October. Scarlet fever mortality, 3 in 98 reported cases; diphtheria, 9 in 45 cases; typhoid fever, 6 in 36 cases. Number of days with 0.91 inch or more of rainfall, 4; mean barometer, 24.72.

Washington.

CHILDREN'S HOSPITAL.—Dr. J. William Hart has been appointed resident physician of the Children's Hospital, having successfully passed the competitive examination for the position.

THE WASHINGTON DENTAL SOCIETY.—The Washington City Dental Society has elected the following officers for the ensuing year: W. N. Cogan, president; Charles W. Appler, vice-president; W. R. Talbott, secretary; M. F. Finley, treasurer; H. B. Noble, librarian; J. H. P. Benson, essayist.

MEDICAL RULES FOR THE POLICE.—Commissioner Wight is having the police manual amended by the addition of rules to the police regulating their management of the sick and wounded found on the streets. The special instruction refers to the immediate care of persons to be removed to hospitals, who have been shot, cut or otherwise wounded, drowned or overcome by heat. Such rules and instructions have been needed in Washington for a long time.

NEW RULES OF THE HEALTH OFFICER.—Health Officer Woodward has issued an order prohibiting any member of his force from entering bar-rooms and like places, while on or off duty except when required to do so officially. They are also prohibited from swearing, at least while on duty. They are also prohibited from making any unfavorable criticisms of any department of the United States or District Government. All their reports in future are to be considered confidential.

THE WASHINGTON TRAINING SCHOOL FOR NURSES.—The Washington Training School has been reincorporated. The medical members of the incorporation are Drs. G. N. Acker

H. L. E. Johnson and D. Percy Hickling. The school, which has been closed, will shortly be in operation on new and improved plans.

PROVIDENCE HOSPITAL IN COURT.—The Providence Hospital, which has recently come to the help of suffering humanity in the District, by the erection of a building on its grounds for the care of minor contagious diseases, is being opposed through the courts, on the ground of the sectarian character of the incorporation, it being alleged that the appropriation of public money for the support of any religious society is a violation of the constitution of the United States. The treasurer of the United States, through the district attorney, has appeared before the circuit court and made argument in favor of the Hospital and the matter has been taken under advisement by the judge.

MEDICAL CHARITY ABUSES.—The Standing Committee of the Medical Association of the District of Columbia at its recent meeting notified officially the medical staffs of the hospitals and dispensaries of the District that they must endorse and comply with the recent regulations adopted by the Association on the subject of medical abuses, and make their reply to the Association not later than January 1. It is believed that the medical staffs are a unit in agreeing to these matters, but some opposition may be expected from the lay members of the different boards. The Standing Committee and the Association, however, have taken a positive stand that the rules and regulations shall be rigidly enforced, and violators promptly disciplined.

Louisville.

APPOINTMENTS.—At a recent meeting of the Board of Public Safety recently appointed by the new mayor the following appointments were made, they being subsequently approved by the Mayor and Common Council: Health Officer, Dr. M. K. Allen; Superintendent of City Hospital, Dr. P. S. C. Barbour; City Physicians, Drs. J. W. Guest and Brent Palmer. Dr. W. P. White was removed to make a place for Dr. Allen. Added to the endorsements of Dr. White already given was that of the State Board of Health, which, while in session in the city, called in a body on the mayor and the board and requested that Dr. White be retained. Dr. Barbour was retained as Superintendent of the City Hospital, in which capacity he has ably served for seven years. Fifty applications were on file for the position of city physician, which pays $75 per month. Dr. Palmer, one of the successful applicants, is a son of the late Dr. E. R. Palmer, whose sad death several years ago will be recalled by many.

SPRING AND SUMMER SCHOOLS.—On January 1, the Hospital College of Medicine and the Kentucky School of Medicine begin their annual session, this being the first year of the Kentucky School existing as the Medical Department of Kentucky University.

RODMAN.—Dr. W. L. Rodman having completed his course of lectures at the Medical Chirurgical College of Philadelphia, has returned to Louisville in time to begin his work in the Kentucky School.

Cincinnati.

THE PUBLIC LIBRARY will hereafter refuse to supply books to persons living in houses where contagious diseases exist, and books being returned from such houses are to be disinfected or fumigated before being returned to the shelves of the library.

THE TRUSTEES OF THE MASSILON STATE INSANE HOSPITAL have asked for an additional appropriation of $25,000 to furnish the buildings about completed. Of the $434,248.91 already appropriated, $365,124.75 has been spent. When completed it is estimated that it will cost about $200,000 a year to run the institution.

THE MORTALITY REPORT for the week shows: Zymotic diseases, 9; phthisis pulmonalis, 16; other constitutional, 8; local, 57; developmental, 8; violence, 5; total from all causes, 102; still births, 11; under five years, 21; under one year, 12; preceding week, 104; corresponding week 1896, 117; 1895, 117; 1894, 124; annual rate per thousand, 13.09.

Societies.

The following meetings are noted:

California.—Annual of the Los Angeles County Medical Society, Los Angeles, December 17.

Indiana.—Delaware District Medical Society, Hartford City, December 21. Mitchell District Medical Society, West Baden Springs, December 27–29. The State Pediatric Society was organized December 28 at Denison.

Iowa.—Central District Medical Society, Jewell, December 21.

Minnesota.—Ramsey County Medical Society, St. Paul, December 27.

Missouri.—Kansas City Academy of Medicine, January 11.

Nebraska.—Elkhorn Valley Medical Society, Norfolk, January 4.

Ohio.—Utica Medical Society, December 30.

South Carolina.—Laurens County Medical Society, Laurens, December 30.

Texas.—South Texas Medical Association, Beaumont, December 28 and 29.

Virginia.—Academy of Medicine and Surgery, Richmond, December 21.

Wisconsin.—Central Wisconsin Medical Society, Beloit, December 28.

CHANGE OF ADDRESS.

Block, G. M., from Steele Block to the Denison Building, Denver, Colo.
Boyer, E. N., from 601½ Hamp St. to 227½ S. 7th St., Quiney, Ill.
Frink, L. J., from Bartlett to Nashua, N. H.
Heller, Chas., from 7114 Cottage Grove Ave. to 4012 Ellis Ave., Chicago, Ill.
Lemen, H. A., from Baltimore, N. C., to Augusta, Ga.
Matheson, J. S., from Chicago to Brandon, Manitoba, Canada.
W. F. McNutt, from Sutter and Montgomery to 1220 Sutter St., San Francisco, Cal.
Parker, D. L., from 559 to 835 Jefferson Ave., Detroit, Mich.
Sargent, A., from Hopkinsville to Frankfort, Ky.
Smith, J. W., from 2313 Washington St. to 2160 Market St., St. Louis, Mo.

LETTERS RECEIVED.

Ball, James M., St. Louis, Mo.; Barry, Albert, Providence, R. I.; Bogie, M. A., Kansas City, Mo.; Bracken, H. M., Minneapolis, Minn.; Burr, W. H., Philadelphia, Pa.; Bradley C. H., E. Las Vegas, N. M.
Caldwell, W. S., Vienna, Austria; Caldwell & Co., New York, N. Y.; Case, W. R., Poughkeepsie, N. Y.; Cleaves, Margaret A., New York, N. Y.; Clement, W. R., Paducah, Ky.; Cohen, I. N., La Crosse, Wis.; Cook, W. H., Coffeen, Ill.; Coolidge, Eva B. (Miss), Nicholasville, Ky.
Darnall, G. D., West Union, Iowa; Dassel, William, Honesdale, Pa.; De Schweinitz, G. E., Philadelphia, Pa.; Denison, Charles, Denver, Colo.; Dougherty, P., Chicago, Ill.
Elliott, H. G., New York, N. Y.; Elson, I. A., Smithville, Ohio.
Fischer, Frank, San Francisco, Cal.; Frizelle, C. H., Rockford, Iowa.
Galloway, D. H., Chicago, Ill., (2); Garcelon, A., Lewiston, Maine, (2); Galbraith, T. S., Seymour, Ind.; Gilchrist, T. C., Baltimore, Md.; Glascock, G., Raleigh, Ill.; Green, B., Perrysburg, Ind.; Green, C. C., Beaver City, Neb.; Gerstein, M., Boston, Mass.
Hardmyer, J. D., Gays, Ill.; Hatch, Theo. L., Owatonna, Minn.; Hill, C. F., Ada, Ohio; Hicks, J. M., Indianapolis, Ind.; Hood, C. J., Elko, Nev.; Holland, J. W., Philadelphia, Pa.; Holland, T. E., Hot Springs, Ark.; Houtz, W. C., Leonidas, Mich.; Hummel, A. L., Adv. Agency, New York, N. Y., (2); Huston, J. H., Clintondale, Pa.
Ingals, E. Fletcher, Chicago, Ill.
Jones, Arthur L., Old Orchard, Maine.
Kelley, Maus & Co., Chicago, Ill.; Kelley, J. Thomas, Washington, D. C.; Klock, D. G., Mt. Carroll, Ill.; Knapp, Chas, Evansville, Ind.
Learned, John B., Northampton, Mass.; Lentz, Charles & Sons, Philadelphia, Pa.; Liston, G. M., Filley, Mo.; Little, L. L., Green Bank, W. Va.
Mattison, J. B., Brooklyn, N. Y.; Martin, F. H., Chicago, Ill.; Meyers, R. E., New York, N. Y.; Micajah & Co., Warren, Pa.; Miller, W. J., Johnson City, Tenn.; Moore, J. L., Bunker Hill, Ill.; Montgomery, Liston H., Chicago, Ill.; Moriarta, Douglas C., Saratoga Springs, N. Y; Mulford, H. K. Co., Philadelphia, Pa.; Mumaw, H. A., Elkhart, Ind; McEnaney, J. B., Ashton, Iowa; McHenry, G. M., Carmi, Ill.; McIntosh Battery and Optical Co., Chicago, Ill; McLean, Angus, Detroit, Mich.; McReynolds, John O., Dallas, Texas.
Nottage, H. P., Providence, R. I.
O'Gorman, James, Baltimore, Md.; Outerbridge, A. E. & Co., New York, N. Y.; O'Brien, R. P., Minneapolis.
Page, Charles E., Boston, Mass.; Palmer, O. W., Spalding, Neb.; Parke, Davis & Co., Detroit, Mich.; Pearce, F. S., Philadelphia, Pa.; Preston, C. H., Davenport, Iowa; Price, E. M. Palo Alto, Cal.
Ramsey, R. T., London, Ky.; Rice, I. L. G., Boston, Mass.; Riggs, J. P., Kappa, Ill.; Roberts, William, Fort Adams, R. I.
Schering & Glatz, New York, N. Y.; Shoemaker, John V., Philadelphia, Pa.; Simons, T. G., Charleston, S. C.; Smith, E. R., Toledo, Ohio; Smith, Gould, Taylorville, Ill; Spratling, W. P., Sonyea, N. Y.; Stearns, F. & Co., Detroit, Mich.; Sanders, W. H., Mobile, Ala.
Thomas, John D., Washington, D. C.; True, J. M., Cedar Rapids, Iowa.
Viko, E., Park City, Utah.
Wampole, H. K. & Co., Philadelphia, Pa.; Wagner, H. P., Delphos, Ohio; Ward, Milo B., Kansas City, Mo.; Weaver, H. D., Leetonia, Ohio; Wickson, David D., Milton, Ontario, Canada; Woitishek, F. J., Cedar Rapids, Iowa; Würdemann, H. V., Milwaukee, Wis.
Young, Charles S., Geneseo, Ill.

THE PUBLIC SERVICE.

Army Changes. Official List of Changes in the Stations and duties of officers serving in the Medical Department, U. S. Army, from December 25 to 31, 1897.

Major Egon A. Koerper, Surgeon (Ft. Crook, Neb.), is granted leave of absence for one month, to take effect on or about Jan. 4, 1898, with permission to apply for an extension of two months.